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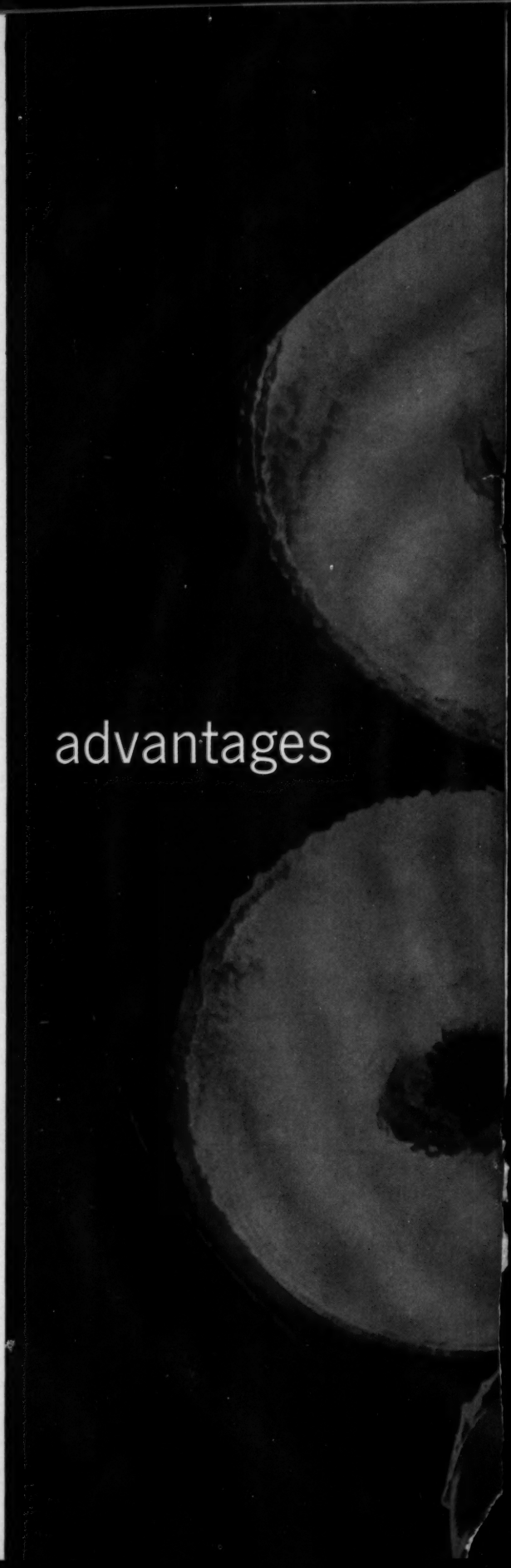

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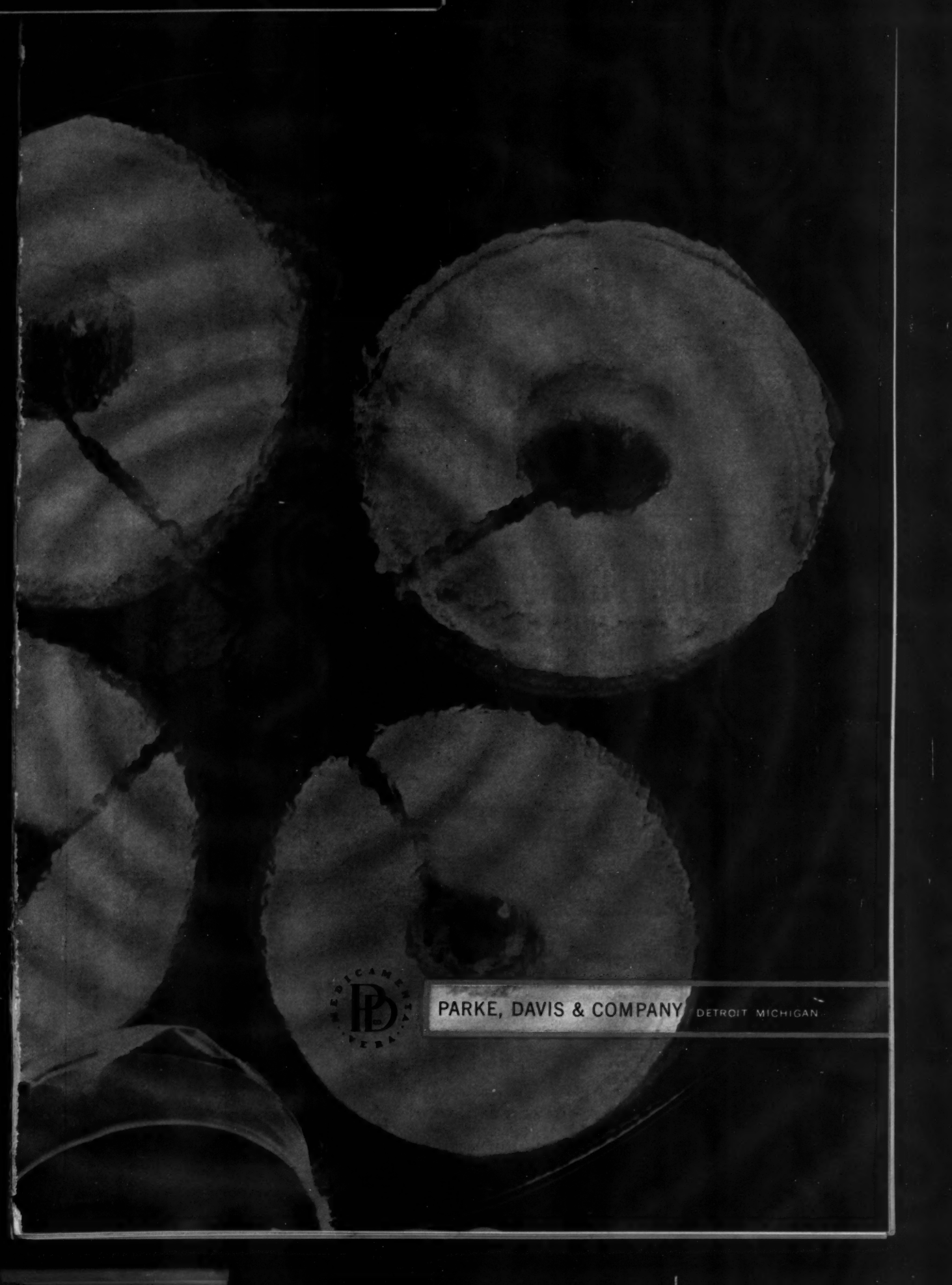
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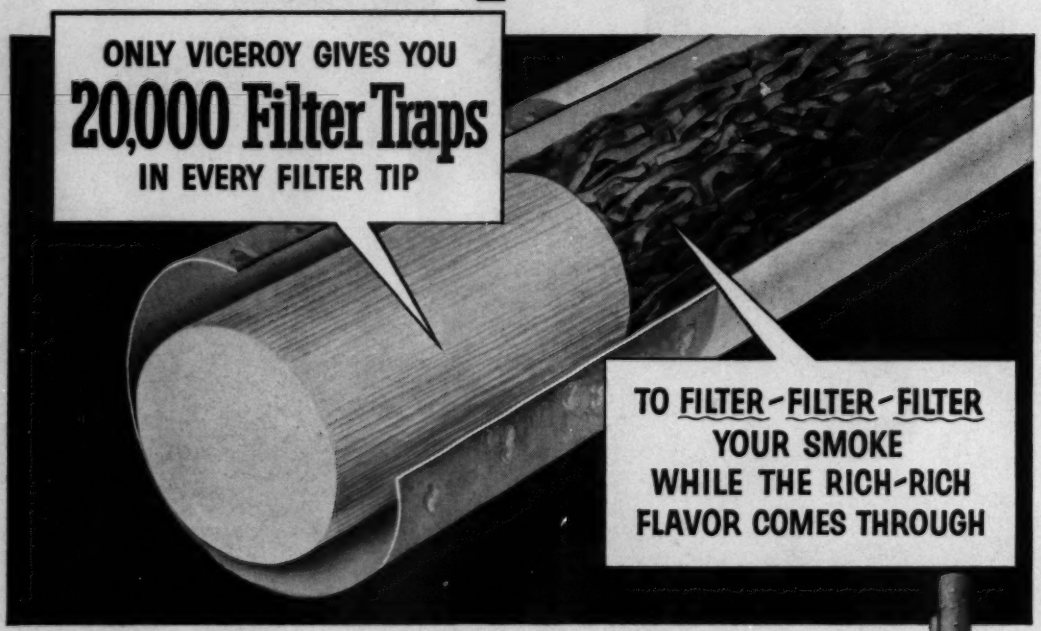

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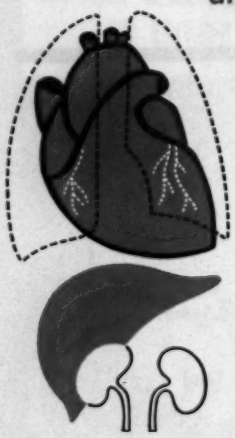

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Rheumatoid arthritis

Bronchial asthma

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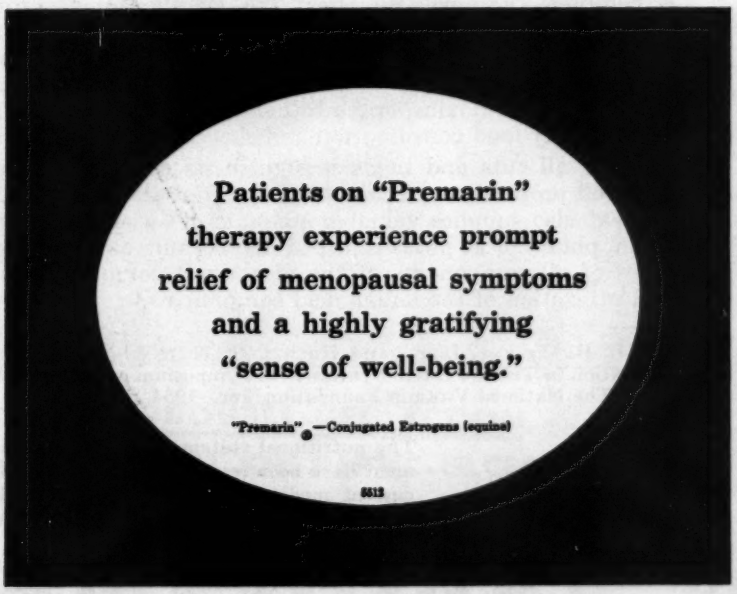

Meat...

and Biologic Facts of Protein Metabolism

The classical work of Cannon and his associates* in the field of protein metabolism has contributed significantly to our knowledge of the biologic utilization of protein. It has established that the dietary absence of a single amino acid quickly changes the direction of metabolic activity from anabolism to catabolism. Apparently all the nonessential amino acids play some part in sparing the essential amino acids, and all may be regarded as indispensable for optimal nutrition. It has been suggested "that for maximal tissue-utilization of amino acids at least twenty per cent of the total dietary nitrogen should come from other sources than essential amino acids."

In undernourished subjects the maintenance requirement for each essential amino acid is much greater—two to almost five times greater—than in healthy subjects.

Although an optimal caloric intake facilitates optimal utilization of amino acids, a reducing regimen need not curtail full utilization of these nutrients. It has been shown that a useful degree of amino acid utilization can be attained with caloric intake considerably below the optimal.

Minerals appear to be important in the process of amino acid metabolism. Evidence indicates that either phosphate or potassium deficiency might adversely influence amino acid utilization. Absence of either ion from experimental depletion rations leads to depression of appetite and slowing of the processes of protein repletion.

B complex vitamins also affect the metabolism of proteins and amino acids. For example, rats fed a high protein diet require a high intake of B complex vitamins in order to maintain normal growth rates. Omission from the ration of any one of these vitamins (riboflavin, thiamine, pyridoxine, or pantothenate) is accompanied, in varying degrees, by lower food consumption and slower weight gain.

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---

*Cannon, P. R.; Frazier, L. E., and Hughes, R. H.: Factors Influencing Amino Acid Utilization in Tissue Protein Synthesis, in Symposium on Protein Metabolism, New York, The National Vitamin Foundation, Inc., 1954, pp. 55-90.

The nutritional statements made in this advertisement have been reviewed and found consistent with current medical opinion by the Council on Foods and Nutrition of the American Medical Association.

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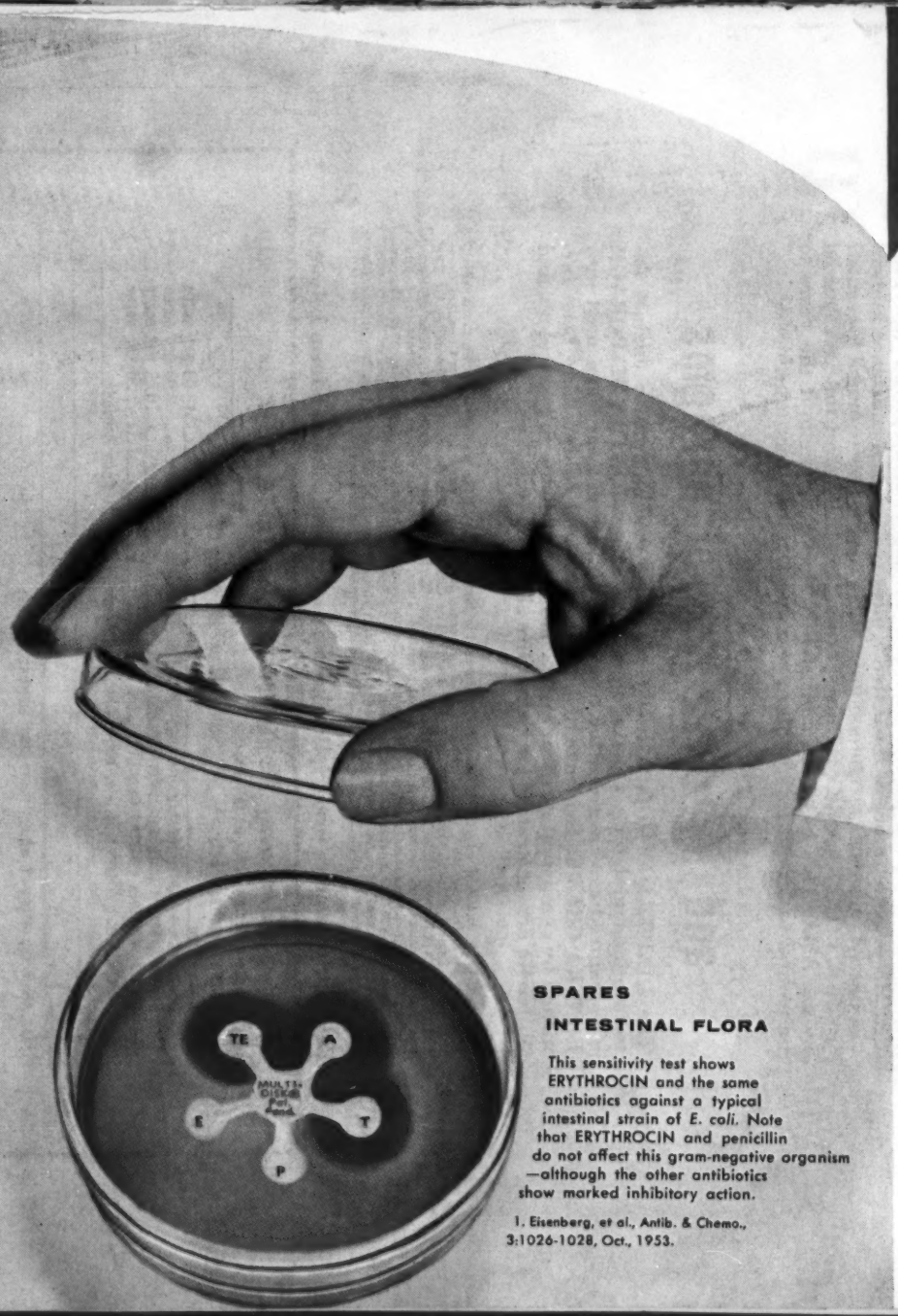

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1. Eisenberg, et al., Antib. & Chemo., 3:1026-1028, Oct., 1953.

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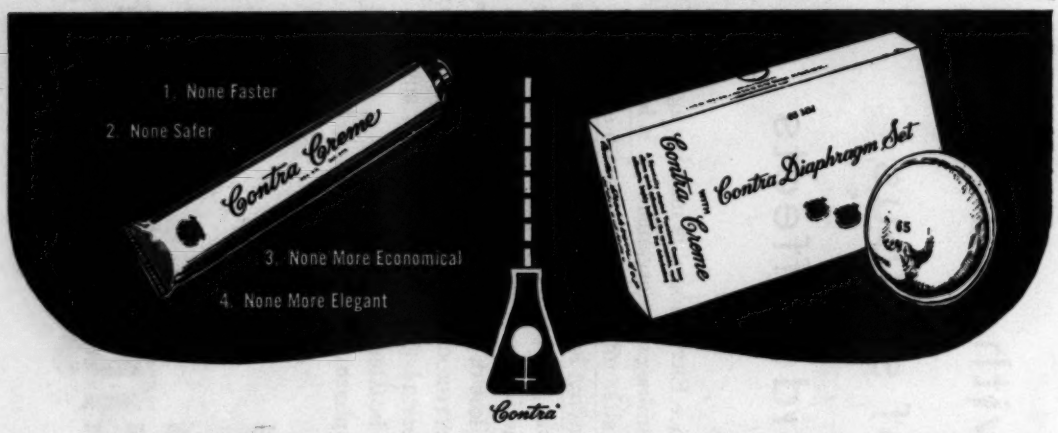

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REFERENCES:

1. James, W. F. B.: A Study Of A Simple Contraceptive Method For Clinic And Private Patients. West, J. Surg. Gyn & Ob., 59: 197, 1952. 2. Baker, J. R., Ranson, R. M. and Tynen, J.: A New Chemical Contraceptive, Lancet, P 882,, Oct. 15, 1938. 3. Report To The Council On Pharmacy And Chemistry Of The AMA: JAMA 148: 50, 1952. 4. Gamble, C. J. and Brown, R. L.: Relative Spermacidal Times of Commercial Contraceptives, Scientific Exhibit AMA Meeting, June, 1941. 5. Brown, R. L., Levenstein, I. and Becker, B.: The Spermacidal Times of Samples of Commercial Contraceptives Secured in 1942, Human Fertility 8: 65, 1943. 6. Becker, B. and Gamble, C. J.,: The Spermacidal Times of Samples of Contraceptives Secured in 1943, Human Fertility 9: 6, 1944. 7. Ibid: The Spermacidal Times of Contraceptive Jellies and Creams Secured in 1946, 11: 111, 1946. 8. New and Non Official Remedies, 1946.

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(1) Payne, R. W.; Shetlar, M. R.; Farr, C. H.; Hellbaum, A. A., and Ishmael, W. K.: J. Lab. & Clin. Med. 45:331, 1955. (2) Bunim, J. J.; Williams, R. R., and Black, R. L.: J. Chron. Dis. 1:168, 1955. (3) Holbrook, W. P.: M. Clin. North America 39:405, 1955.

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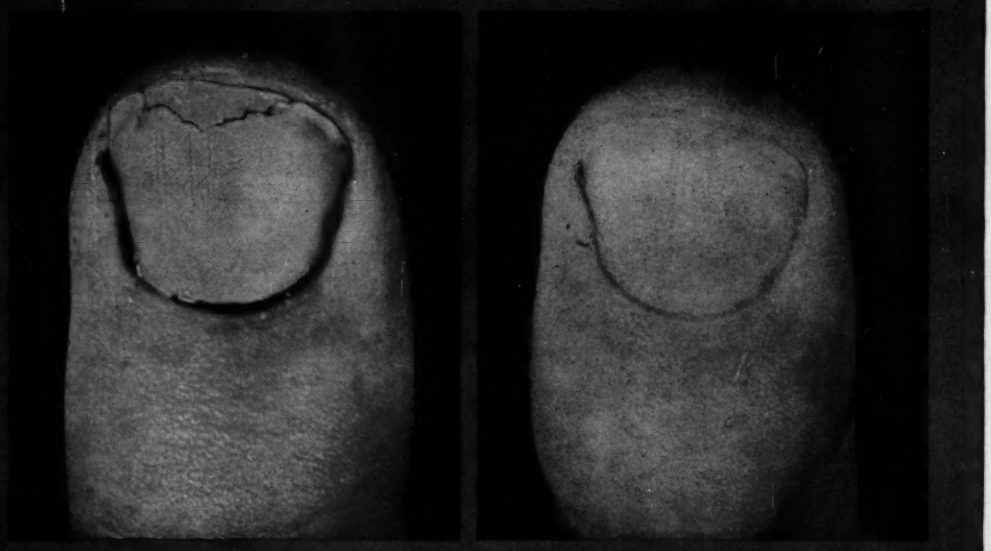

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1. Rosenberg, S. and Oster, K. A., "Gelatine in the Treatment of Brittle Nails," *Conn. State Med. J.* **19**:171-179, March 1955.
2. Tyson, T. L., *J. Invest. Dermat.* **14**:323, May 1950.

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Bronchial asthma
Inflammatory skin conditions

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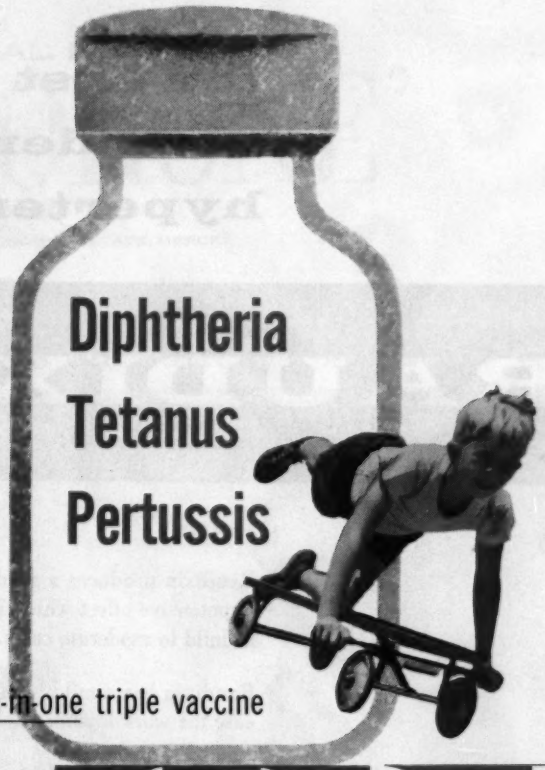

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REFERENCE: 1. Robinson, R. C. V., *J.A.M.A.* 157:1300, April 9, 1955.

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the delta, analogue of hydrocortisone

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Indications: *Rheumatoid arthritis*
Bronchial asthma
Inflammatory skin conditions

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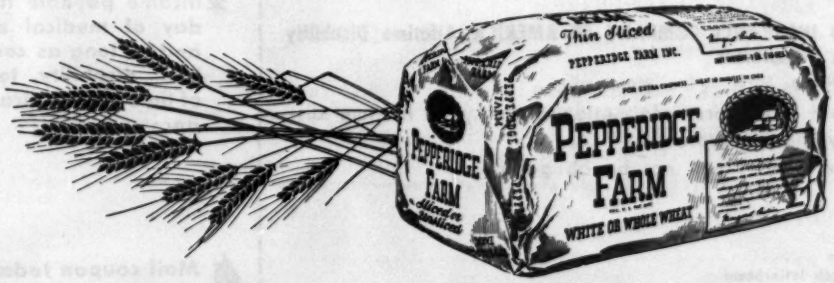

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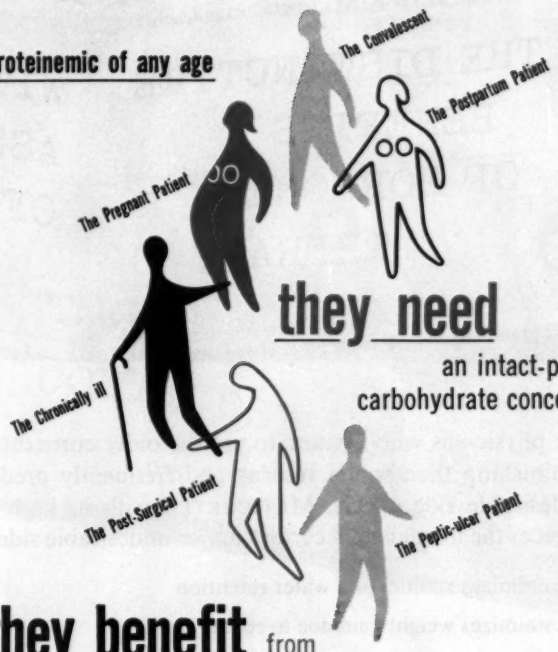

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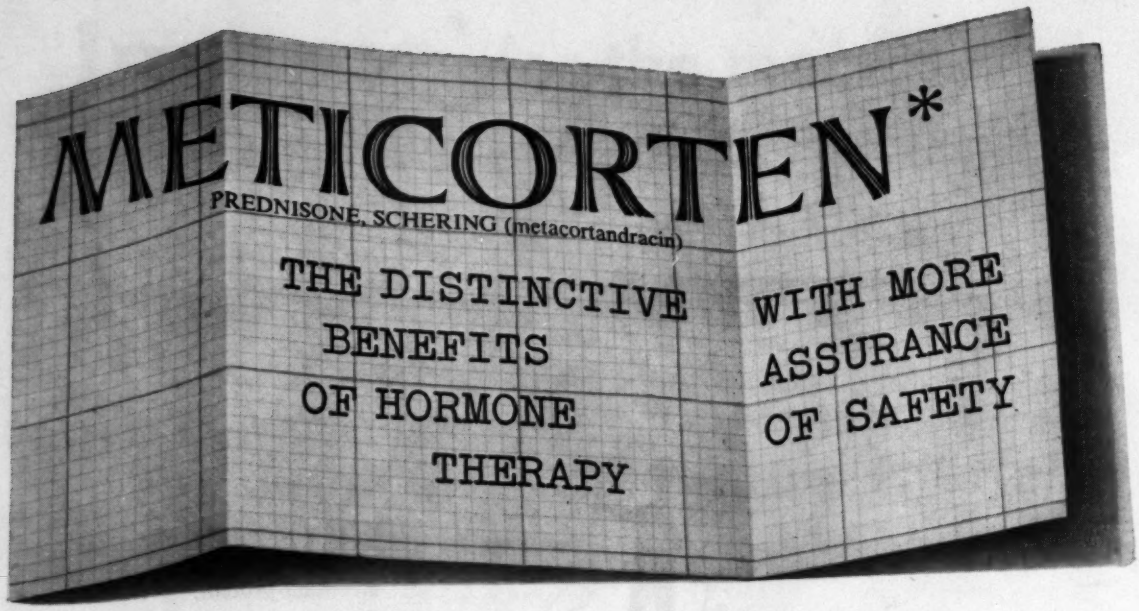

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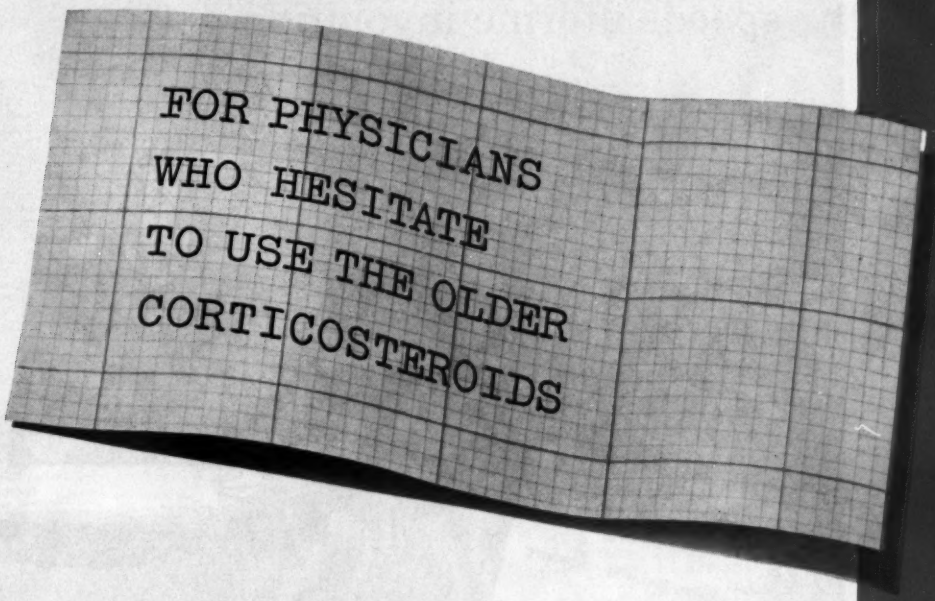

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IS DELAWARE'S DILEMMA DEHYDRATION?

DONALD K. HARMESON, M.P.H.,*
Dover, Del.

Delaware is bounded on one side by the Delaware River and the Atlantic Ocean; is criss-crossed with smaller streams; and is dotted with fresh water lakes and ponds. With such an abundance of water it is hard to imagine water shortages in this state. Nevertheless, 1954 was known as the "Dry Year" by members of the Brandywine Valley Association and at one time the total flow of the Brandywine was being used by the City of Wilmington. During the same period many farm wells went dry and at Dover Silver Lake became a mud puddle.

Since water is our prime natural resource, essential to health, municipalities, industry, agriculture, game and fish conservation, and recreation, all persons are affected by the lack of abundant water supplies.

Therefore, several groups of people have turned their attention to the problems of whether or not there is a serious shortage of water in the state or in any portion of the state. Among these are the Delaware Engineers Association and the Delaware Water Resources Study Committee. The latter group was appointed by the Governor, with representation from various state agencies and organizations. Since an ample supply of safe water is essential to health the State Board of Health is represented on this committee. The preliminary report of the committee was submitted to the Governor in April, 1955.

This report points out some of the existing water problems throughout Delaware. Among them are: shortages; salt-water encroachment; pollution; soil erosion; and chemical quality.

The shortage of surface water in the Brandywine was pointed out previously. Stream flow records show that such shortages will occur on many Delaware streams. With the ever-increasing population and industry such shortages will become more serious.

Ground water exists in sufficient quantity to meet the needs of the state for several years. There are some existing ground water problems which drew the attention of the study committee. These have also arisen because of the increase in population and industry. Foremost is the lowering of the ground water table in the Dover and Milford areas. A comparison of reports of water levels in the Dover area shows a fall in the ground water level of almost 80 feet between 1918 and 1953. In the Milford area the water levels in the principal water producing sands have fallen 40 feet in the last 40 years. The report points out that "there is no dangerous water shortage in the Dover area at present, but that an exploratory program for the location of deeper water bearing sands is time consuming and should be done before the need becomes critical." This also applies to the Milford area.

Salt water encroachment refers to the intrusion of salt water from the ocean or brackish bays into fresh water bearing formations. Such intrusion creates a serious problem since it may result in the abandonment of a well while plenty of water is still available. Salt water contamination has been experienced at Slaughter Beach, Lewes, Rehoboth Beach, and beneath portions of Fenwick Island.

The proposed deepening and widening of the Chesapeake and Delaware Canal brings up a question of the possibility of salt water intrusion of water-bearing sands. These sands may be discharging fresh water into the Canal. The expected growth of northern Delaware may bring sharp increases in the amount of water

* Director, Division of Sanitary Engineering, State Board of Health.

pumped from the ground and cause a reversal of flow with the possibility of contamination by salt water.

Salt water encroachment on surface water supplies will adversely affect its use in industry, in agriculture, and possibly affect natural oyster bed areas. The proposed diversion of some of the head waters of the Delaware by New York has brought up the possibility of increased salinity in the lower reaches of the Delaware River.

Delaware has been making progress towards the determination of its pollution problem and toward pollution abatement. Most of the major streams in the state have been surveyed to determine the location, extent, and effect of pollution. Abatement progress has been somewhat delayed due to the lack of sufficient personnel to operate an aggressive follow-up program.

Erosion in its various forms is a prime difficulty in northern Delaware and to a lesser degree throughout the lower part of the state.

The chemical quality of water can limit its use for either domestic or industrial purposes. Ground waters in Delaware are generally of good chemical quality. In certain areas of the state, however, the amount of iron is excessive. Chemical quality of surface waters are affected by salt water encroachment and pollution, both of which have been pointed out previously.

In addition to the fore-going problems there is a question of the rights to the use of water in this state. There appears to be few published Delaware court decisions which have a direct bearing on the question of water rights and there is relatively little legislation bearing on the subject. The ever-increasing needs for water will undoubtedly bring about disputes over the ownership of our water resources, both ground and surface.

The committees survey revealed that Delaware in general, is not in danger of being dehydrated. But, "in order to dig our wells before we are thirsty," detailed studies were recommended. Among these are the following:

1. Testing of water-bearing sands, particularly in critical areas such as Milford and Dover.

2. Establishment of more gaging stations on surface streams in Delaware so that information on the effect of dry seasons will be known.

3. A comprehensive study, by an engineering firm, of the water situation in upper New Castle County.

4. A comprehensive study of the water rights laws of other eastern states and the adaptation of such legislation to Delaware needs.

5. A coordinated educational and informational program on water problems and policy.

Since an adequate supply of potable and palatable water is essential to good health, the medical profession of the state should familiarize themselves with the problems, and support the committee in its effort to develop a satisfactory water policy for Delaware.

WATER RE-USE:
The Key to Our Future Expansion and Well-Being

A. JOEL KAPLOVSKY, Ph.D.,*
Dover, Del.

Water is our most valuable natural resource. Its multiple usages must be understood and protected to derive the greatest benefit for all. Good judgment and understanding would indicate that the multiple demand for water necessitates supervision of distribution and control of pollution on the basis of best water usage. Important usages may be listed, as domestic and industrial supply, recreation, protection of real estate, navigation, shellfish, agriculture, fish, and wildlife.

The two primary sources of water are surface and ground water. Surface water resources are predominantly available in the northern part of New Castle County and decrease progressively downstate.

* Supervising Engineer, Water Pollution Commission, State of Delaware.

Ground water availability is meagre in this part of the state where the concentration of population and industry is greatest. Ground water resources, however, increase progressively south of the Chesapeake and Delaware Canal but cannot be considered a major aspect of future expansion in northern New Castle County.

Domestic and industrial water supply from our streams reaches millions of gallons daily. At present, in excess of 60% of our water needs for the state of Delaware are derived from surface supplies in northern New Castle County.

In evaluating available surface water one must be fully aware of (a) the safe yield, (b) the location or distribution of such waters, (c) the present and future uses, and (d) the quality of used water for re-use. Without proper evaluation of each of these four important factors not only would the available water estimates be unreliable but would result in an imprudent over—or underestimation of our natural water resources.

Safe yield should be clearly defined as the volume of water which is available during dry weather flow over an extended period of measurement. It would certainly be unwise to estimate the water yield per acre on an average or during peak runoff periods simply because the highest water demands for agriculture, municipal and industrial purposes occur during periods of low flow. Municipal water works and industrial water handling equipment invariably involve considerable expenditures simply because works design must be based upon long range planning covering minimum dry weather flow periods. It is imperative that the safe yield be based upon several years of low flow measurements.

Distribution of surface water within Delaware varies considerably throughout the state. Excluding Delaware River, the land and water area in Delaware totals 2100 square miles. Approximately 435 square miles of this surface area is continually subjected to saline waters, and therefore, must be excluded as a source of fresh water. The western portion of the state, constituting an area of 276 square miles, is made up of very small tributaries discharging into headwaters of streams located in Maryland. This latter area must be considered cautiously in estimating available surface water in Delaware. Omitting saline and other areas which cannot serve all water usages, a net of 1,389 square miles only can be relied upon as a source of fresh surface water. Further, a large portion of this 1,389 square miles is influenced by swamp-type water, which is not particularly desirable for many of the important usages. In view of this widespread water availability throughout the state and also the marked changes in volume with each season, it is conceivable that certain areas may, of necessity, be declared critical at the present time or in the near future. Immediate investigation should be made throughout the state to establish probable shortage areas with the possibility of rigid control of distribution.

The volume of fresh water drawn from some of our northern streams, in all probability, exceeds the available safe yield. This ambiguity is possible only because much of our surface water is re-used again and again. Certain users of large quantities of fresh water return the water unchanged or very slightly changed in composition, and the net result upon the recipient stream is not detrimental. In addition, certain large volumes of waste water are treated or will be treated in the near future and are amenable to stream self-purification once discharged into the receiving stream. However, the gradual build-up of chemical constituents and other undesirable materials from untreated waste discharge will, without doubt, affect further re-use downstream. The greatest single factor which will affect the available fresh water will be the quality of the used water discharged to the natural drainage areas. It is imperative, therefore, that whenever possible, waters contaminated during handling be adequately treated before returning to the

streams for further re-use. In this way the potential of our expansion will be greatly increased.

The present riparian doctrine governing water usage in Delaware is an old law predicated on the assumption that unlimited water was available for all uses. However, this situation does not now exist. Our expanded economy dictates the need for large volumes of water and the only means of achieving this end is to acknowledge immediately the fact that water is not unlimited, and the only reason our economy has been moving ahead is because our water is being used and re-used many times over. Judicious handling of used water is the key to our future expansion and well-being.

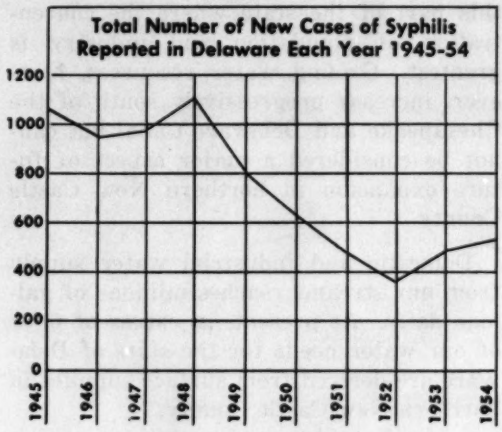
THE BATTLE AGAINST SYPHILIS IS NOT YET WON

WINDER L. PORTER, M.D., M.P.H.,*
Dover, Del.

More than a decade of use has firmly established penicillin as a potent weapon to combat syphilis. Indeed, its success has been so notable that predictions have been freely offered that in a short time this disease would cease to be a major health problem. Since the general acceptance and adoption of treatment programs employing penicillin reports of new infections have steadily declined, except perhaps for brief resurgences. In many parts of the country this decline has progressed until there is difficulty finding adequate teaching material.

In Delaware the pendulum has swung and the reports of new infections are mounting. Fig. 1 depicts the range of reports of new cases of syphilis over the past ten years. Inasmuch as the population has steadily increased during the period, the gradient is more striking when the course is charted on the basis of case reports per unit of population; the decline in rate since 1948 is sharper while the rise since 1952 is just as definite. The rise in 1948 is due largely to a change in the system of tabulation in that

Fig. 1



cases of syphilis which were previously known but which were being retreated with adequate amounts of penicillin were regarded as new cases. This system of tabulation was abandoned after 1954.

Current practice is to thoroughly check all case reports with a roster and to count as new morbidity only those cases on whom no previous record from any source can be found. Even with the deletion of many cases which would have been included under previous systems, present rates are definitely high and heading upward. Fig. 2 compares the reports of syphilis in Wilmington and in the entire state with those from the continental United States on a basis of rates per 100,000 population. The comparison is both for early syphilis and for total syphilis in the two years ending July 1, 1955, with no figures being available for the last half-year in the continental United States. Consistently 40 - 50 per cent of the cases reported in Delaware come from the city of Wilmington which now ranks very high among the leading cities of the United States with regard to incidence of this disease. Rates for the city exceed those for the state which in turn exceeds the United States at large.

There is good evidence that there is a sizable number of cases detected each year who are never officially reported although more often than not they do receive treatment. Some of these cases are

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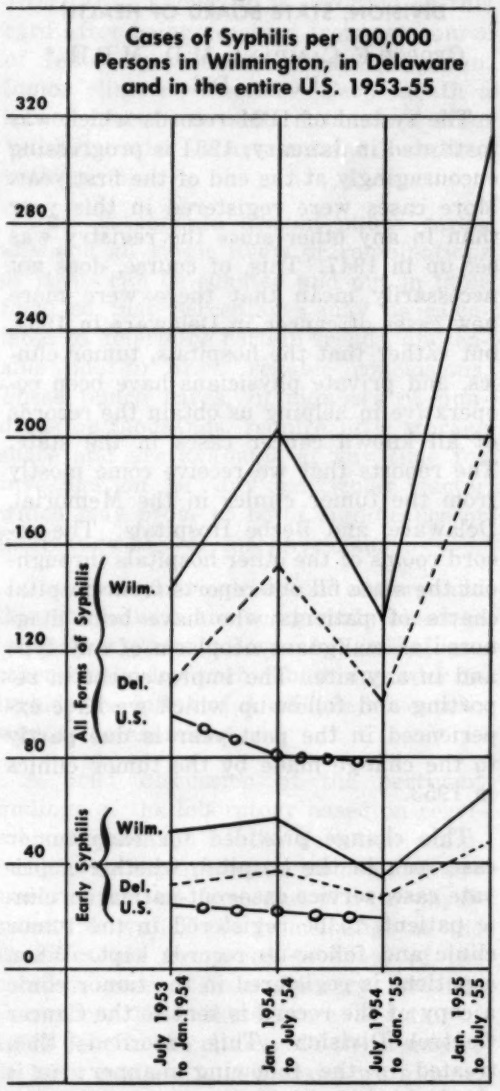
Fig. 2



indicated by tests performed in the State Board of Health Laboratory, while others are elicited by tests performed elsewhere. It is very important to determine the size of this unreported group, and the stage of their infections so that they can be incorporated with the already unfavorable statistics.

Is there an explanation for this turn of events in Delaware? Does it mean, perhaps, that there is a nucleus of new infections which continues to be disseminated? Actually, during the year ending July 1, 1955 not a single case of primary or secondary syphilis was reported from any of the clinics and there has been a progressive decline in cases diagnosed as early latent syphilis in these facilities. There has been no evidence of anything simulating a chain of infections which can be linked together. The great mass of these reports of early syphilis have come from private physicians and other sources. It could well be that many of these infections have existed longer than suspected and properly fall into some other stage.

Syphilis of the newborn has virtually disappeared from the scene. Every infant reported under treatment for congenital syphilis was treated under circumstances which made the diagnosis questionable. So often "prophylactic" treatment was given because of positive serologic reactions in blood from the umbilical cord, without consideration of the stage of infection in the mother and the extent of her previous treatment. But even if all were infected, they would raise the number of new cases very slightly and could not be deemed a factor in the rise.

We lack support, therefore, for a belief that new epidemics are taking place. Most of these cases are detected by routine serologic tests for marriage, for employment, and the like. Undoubtedly an increase in the sensitivity of tests employed accounts for some of the rise. The cardiolipin antigens particularly have served to bring out many cases which would have escaped detection by tests previously employed. The specificity and usefulness of these tests is well exemplified in the case of many patients who have been seronegative for years after satisfactory treatment for syphilis in the past but who now exhibit reactivity in low titer. These people have not relapsed or become reinfected; they merely produced reagin in amounts too small to be detected by older tests. Where one has only the history of repeatedly negative tests from a patient whose S.T.S. is now reactive, it is not unnatural to consider the infection newly acquired and report it as early latent.

For some time a questionnaire has been returned to the physician along with the report on a specimen submitted by him to the State Laboratory where that specimen showed evidence of syphilis. Response to this questionnaire has formed the basis of a considerable number of case reports. Recently a more intensive follow-up has been established for those questionnaires which have been unanswered. Further reports have been secured in this manner and account for a portion of the rise in the first half of 1955. At the same time there has been a considerable rise in reports adjudging the reactions to be falsely positive. The importance of this problem of Biologic False Positive reactions cannot be minimized but it must be firmly pointed out that they are not nearly so common as some persons are led to believe. Thorough evaluation of a case and often prolonged observation is necessary to confirm a BFP; meanwhile one must always be alert for a latent syphilis which is not suspected and which may yet produce some untoward consequence.

Whatever the explanation, every yardstick points to the conclusion that Delaware still has a long road ahead in its war with syphilis. There must still be a sizable reservoir of cases which have not been detected or adequately treated. The true picture must be cause for concern, and Wilmington especially is a prime target for a search for unknown cases. Whether the problem is created by failure of previous detection campaigns, by immigration into the state, or by an insidious spread of new infections, one must consider the potential burden in welfare benefits unless this reservoir is tapped. It is the responsibility of every physician practicing in the state to be continually alert for hidden syphilis in those employing his services, to provide indicated treatment, and to submit necessary reports so that we may continue to measure the extent of the problem and the inroads made upon it.

1954 REPORT FOR CANCER CONTROL DIVISION, STATE BOARD OF HEALTH

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The system of IBM records which was instituted in January, 1954 is progressing encouragingly at the end of the first year. More cases were registered in this year than in any other since the registry was set up in 1947. This, of course, does not necessarily mean that there were more new cases of cancer in Delaware in 1954, but rather that the hospitals, tumor clinics, and private physicians have been cooperative in helping us obtain the records of all known cancer cases in the state. The reports that we receive come mostly from the tumor clinics in the Memorial, Delaware, and Beebe Hospitals. The record rooms of the other hospitals throughout the state fill out reports from hospital charts of patients who have been diagnosed as malignant neoplasm of any type and in any site. The improvement in reporting and follow-up which we have experienced in the past year is due partly to the change made by the tumor clinics in 1953.

This change provided for each tumor case seen in the hospital, whether a private case, service case, out-patient or clinic patient, to be registered in the tumor clinic and follow-up records kept. When a patient is registered in the tumor clinic a copy of the record is sent to the Cancer Control Division. This record is then treated in the following manner: it is checked with all old files to see if it is a new case; if so, the case is given a state registry number, is recorded in an accession registry book, and has a cross-index card filled out to be filed in a master case file. Next the tumor record sheet on which our data are recorded is coded using the International Statistical Classification of Diseases, Injuries and Causes of Death as code for the diagnosis. All malignant neoplasms of all sites and tissues of the body, including leukemias, Hodgkin's disease and multiple myeloma, are registered and followed once a year for a period of five years. The record

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having been coded is then punched on an IBM card. Follow-up is recorded on this card after being received from the source of follow-up whether private physician, tumor clinic or hospital. Each month a list of cancer mortality is obtained from Vital Statistics Department and is checked with our files.

Once these data are on punch cards, any and all single items or combinations of items can be counted and put in table form so that percentages may be calculated to determine certain trends, and enable one to draw reliable conclusions. These punch cards, in numbers of hundreds or thousands, require little storage space and are available at any time for investigation of any particular factor which may prove to be of significance or interest to any of the physicians.

The permanent detection centers and the mobile unit are being maintained as in former years. Dover has added another clinic day each month in order to include the influx of Air Force wives who wish to be examined.

A brief discussion of the pertinent findings of the laboratory based on cervical smears taken at the detection examinations on asymptomatic women and also smears received from the private physicians follows. There is a change as the statistics are compared to those of the previous years. From January, 1954 to December, 1954 there were a total of 1,324 done in the clinics. Of these smears 21 were positive, and biopsies were done. The results of the biopsies were 14 negative and 7 positive for cervical cancer. These data do not give us the rate that we maintained in the three years prior to 1954 which was approximately 3 per thousand positive biopsies. Having the above figures we conclude that we found over 5 per thousand cervical cancers in the detection centers in 1954.

It is interesting to compare the outcome of laboratory work on the smears done by the private physicians. A large percentage of these smears were done on women who had previously consulted a doctor. There was a total of 1,647. Out of these, 7 cases were referred for biopsy, 2 proving negative and 5 positive. This shows a rate of less than 3 per thousand positive cases found.

SERVICES AVAILABLE TO THE CHILD WITH A HEARING IMPAIRMENT

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and
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From time to time various reports of services offered by the Division of Crippled Children's Services of the State Board of Health to children with defects of speech have appeared in THE JOURNAL. However, only one article[4] has reported on services available through the Division of Crippled Children's Services to the preschool child with a hearing impairment. Three other articles[1,2,3] have reported on various aspects of otological and audiological treatment of the child with a hearing impairment. These latter articles, while not dealing with the role of the Division of Crippled Children's Services, per se, describe services which are available through the Division.

The purpose of this report is to give a summary of services given either directly by personnel of the Division of Crippled Children's Services of the State Board of Health or services which are available through the State Board of Health to the child with a hearing impairment.

In order to make the report more understandable, it has seemed advisable to divide these services into three categories: (1) services available to the preschool child; (2) services available to the school age child; (3) services available to the child attending an out-of-state residential school for the deaf. These divisions are arbitrary, and it must be understood that there is a great deal of overlapping: no one type of service is given solely to any one of the groups.

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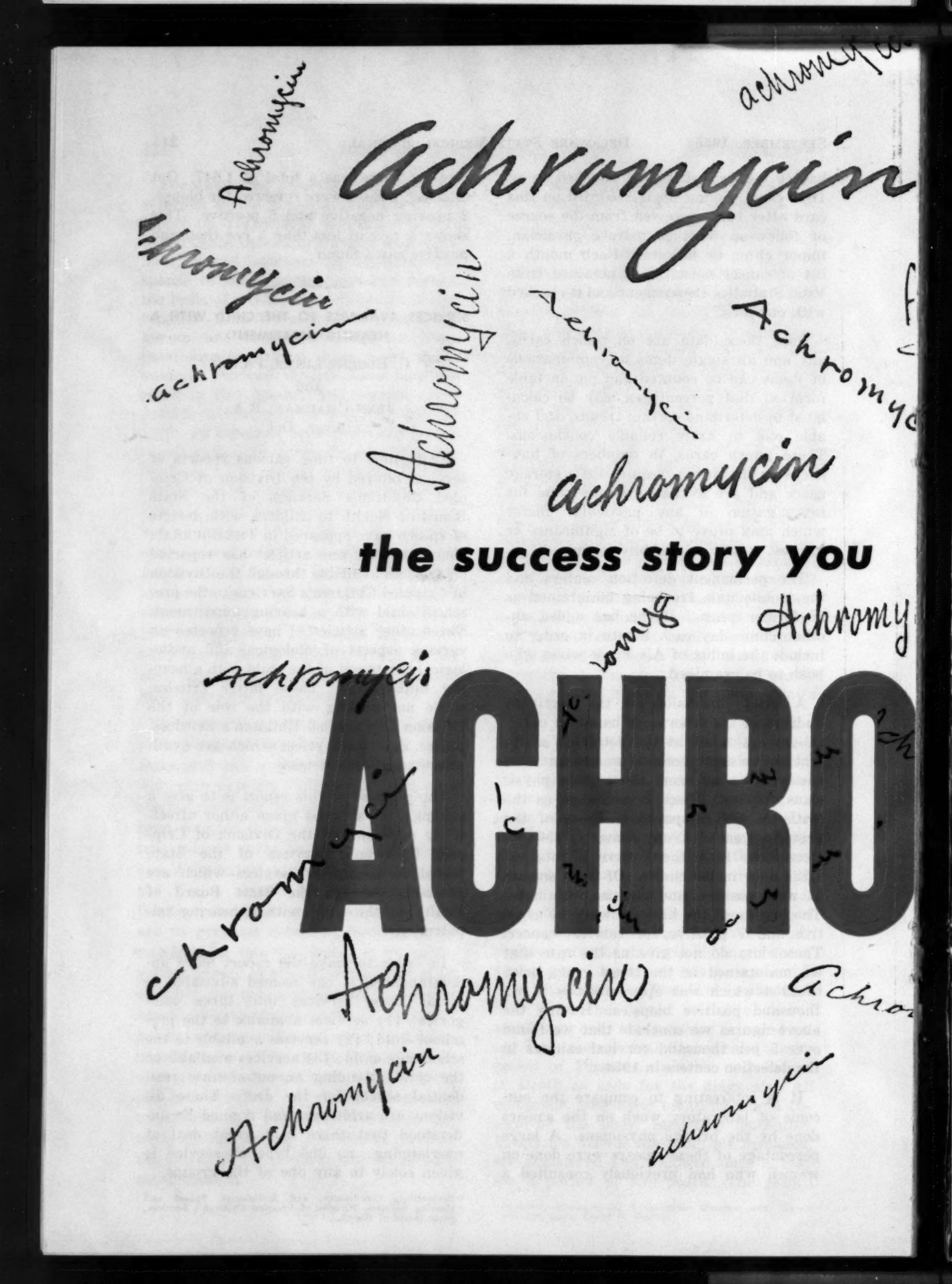
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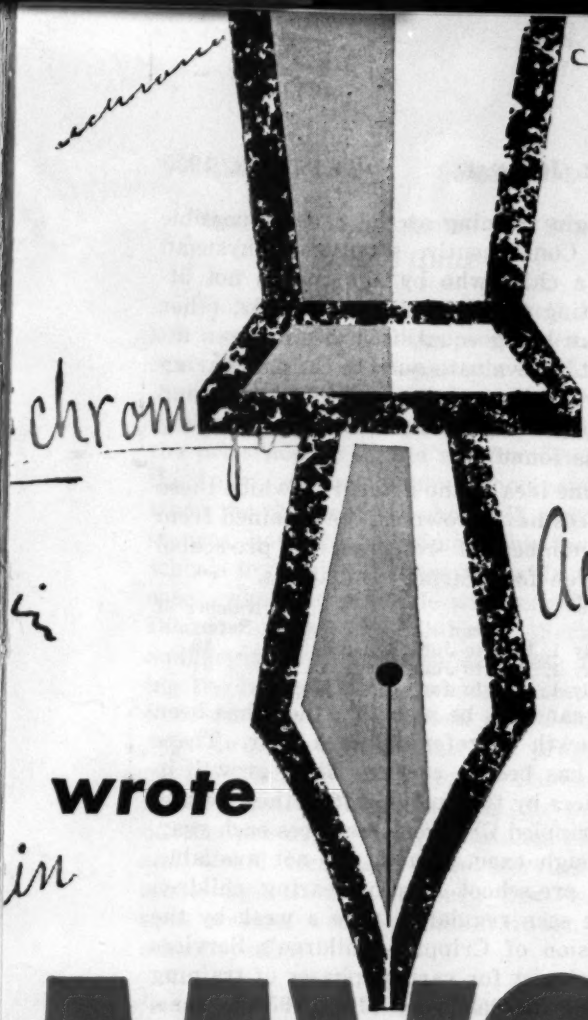

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I. SERVICES AVAILABLE TO THE PRE-SCHOOL CHILD

A. *Direct Services.* It is in this category of direct services to the pre-school child that the greatest part of the time of the audiologist of the Division of Crippled Children's Services of the State Board of Health is spent. Through her the following direct services are available to the pre-school child:

1. Initial phases of the program in which the child is acquainted with the concept of sound itself; and further with the idea that specific sounds mean specific things.
2. Following phase one, the audiologist teaches the child that sounds in various combinations mean various things: this leads to the concept first of words, and later connected speech.

The two phases mentioned above cannot be so neatly packaged in actual training as has been done here. The transition from the first phase to the second and back again is constant and never ending. Because the child does not have normal hearing the audiologist teaches him to use what residual hearing he has, and to attend to various other cues, such as placement and movement of lips, tongue, and teeth, and more subtle cues such as vocal inflection and facial expression. Many and varied techniques are used by the audiologist in the attainment of these ends. As soon as possible the audiologist attempts to objectively evaluate the child's hearing and see that amplification is made available when it seems advisable.

It seems pertinent to insert one important digression at this point. The program outlined above for the pre-school child presumes one important factor: that the child's hearing impairment has been discovered. It is in the discovery of the hearing impairment that the family physician, the child's pediatrician, or the consulting otologist can play an important role. Usually one or more of these physicians sees a child within the first two years of life. In the training of the child with a hearing impairment it is essential to begin training at the earliest possible age. Consequently, when any physician sees a child who by age two is not attempting to communicate verbally, other factors being equal, it is desirable to attempt to evaluate such a child's hearing in order that a program of speech and language may be instituted if a hearing loss is found.

Some idea of the manner in which these services have grown can be obtained from the number of referrals of pre-school children for hearing evaluations.

Year	Number of Referrals
July 1, 1952 to June 30, 1953	18
July 1, 1953 to June 30, 1954	31
July 1, 1954 to June 30, 1955	37

It can thus be seen that there has been a growth in referrals each year. There also has been a corresponding growth in services by the audiologist of the Division of Crippled Children's Services each year, although exact figures are not available. Ten pre-school hard-of-hearing children were seen regularly twice a week by the Division of Crippled Children's Services audiologist for various phases of training during the past year (July, 1954 to June, 1955).

B. *Indirect Services.* These services are those not performed directly by the State Board of Health personnel. Such services are usually performed at the Audiology and Speech Center and the Ear, Nose, and Throat Clinics of the Delaware Hospital. Such services include audiological and otological examinations and treatment, auditory training when it is impossible for the Division of Crippled Children's Services audiologist to give it, and hearing aid evaluations and orientation. These services will be discussed in the section under Indirect Services to the School Age Child, because most children receiving these services are school age children. It should be pointed out that any physician can refer directly any child to the hospital for any or all of these services on a private basis, or such a child may be referred to the Division of Crippled Children's Services, which provides these services through the hospital as part of its diagnostic services.

II. Services Available to the School Age Child

A. *Direct Services.* In most cases, direct services, i.e., lip reading, auditory training, language development, which the audiologist of the Division of Crippled Children's Services furnishes directly to the pre-school age child are furnished by therapists of the public school system when the child enters school. In some instances, however, it is impossible for the schools to provide these services. In these cases, when her schedule will permit, the Division of Crippled Children's Services audiologist provides these services. During the last academic year, such services were furnished to 6 school age children on a twice a week basis. The program of the Division of Crippled Children's Services places emphasis upon the needs of the pre-school hard-of-hearing child, and would terminate direct services to school age children at such time when such services were available through the school system.

B. *Indirect Services.* Numerically speaking, it is this phase of the hearing program of the Division of Crippled Children's Services that renders service to the greatest numbers of children. In the past three years every public school child in grades one through six, and some children in grades seven through twelve, have been given an individual pure tone audiometric test by therapists of the public school system. When any child fails to meet certain predetermined criteria, he is referred, following clearance with the family physician, pediatrician, or otologist, to the Hearing Services of the Division of Crippled Children's Services. Ten months every year — September through June — clinics are conducted on alternate Wednesday afternoons at the Delaware Hospital for the Division of Crippled Children's Services. At the time of the child's first visit — and many children make but one visit — diagnostic audiologic and/or otologic services are available. These diagnostic services are provided at no fee by the Division of Crippled Children's Services. Following this visit, when any one of a number of treatment services are required the family is urged to procure such services from the family physician, pediatrician, or otologist. When the family is economically unable to provide these services for the child these treatment services are made available through the Division of Crippled Children's Services. Again, medical clearance will have been obtained before treatment is begun. The following statistics will show the manner in which these services have expanded:

Year	Number of School Age Referrals
July 1, 1951 to June 30, 1952	100
July 1, 1952 to June 30, 1953	151
July 1, 1953 to June 30, 1954	311
July 1, 1954 to June 30, 1955	178

The reason for the drop from 311 in the year 1953-54 to 178 in the year just ended, 1954-55, needs a word of explanation. It is not due to any decrease in services. Rather it is due to the fact that in 1953-54 all children in the public schools in grades one through six were tested, most of them for the first time, whereas in 1954-55 only children in grade one, plus limited numbers in grades seven through twelve were tested for the first time, and children in grades three and five were retested. In other words, the 311 for year 1953-54 is abnormally high, due to accumulated backlog, rather than the 178 for the year 1954-55 being abnormally low. While the number of children receiving diagnostic services has fallen off, there has been a corresponding rise in treatment services, this as the result of the large numbers given diagnostic services the previous year.

III. Services Available to the Child in Out-of-State Residential Schools for the Deaf

The State Department of Public Instruction is responsible by law for the education of "deaf children" in the state of Delaware. However, because the Division of Crippled Children's Services has the facilities outlined in previous sections of this report, each child applying for admission to a school for the deaf is

routinely referred to the Division of Crippled Children's Services for a hearing evaluation. The child is referred to the Audiology and Speech Center at the Delaware Hospital for this. Following this evaluation, the individual child is usually discussed by all concerned and a decision is reached as to what course of action seems best for that child. Thus, for a given case any of the direct or indirect services available through the Division of Crippled Children's Services may be given. At present 18 Delaware children are residents at three out-of-state schools for the deaf.

SUMMARY

The services available through the Division of Crippled Children's Services to any child from birth to age twenty-one years have been described. Those services which are directly performed by the audiologist of the Division of Crippled Children's Services, as well as those services available from other agencies through the Division of Crippled Children's Services, have been enumerated. Some idea of the numbers of children receiving each service has also been presented.

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DENTAL NEEDS OF DELAWARE CHILDREN

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At no time in the history of this state has the need for dental service for children posed problems of such magnitude as those which confront us today and there is small likelihood of finding an immediate solution that will benefit more than a small segment of our present child population.

Dental disease, we are told, is man's most common ailment. This no doubt because it characterizes a group of dental ailments chief among which is dental caries, a condition which has world-wide distribution and affects more than 95 per cent of the world's population.

The dental caries problem among children between the ages of three and nineteen is a tremendous one. Here as elsewhere it starts very early after the deciduous teeth are erupted and is continuous for as long a time as teeth remain in the mouth of an individual. Through early childhood on through early adulthood the records of this division indicate an annual increment of approximately one new carious tooth per child. However, according to Brekhus'[1] who studied the pattern of dental caries in a group of freshman college students, the situation is changing. "Despite all the care that has been and is being given to the teeth of (these) university students, these teeth are now decaying to a greater degree than they were 10 years ago and a still greater degree than they were 20 years ago . . .", the picture may even now be changing, and an even higher annual increment may be indicated for the future.

A further indication of the enormity of our dental problem is revealed in a study made in New Castle County and reported in the Delaware State Medical Journal,[2] and one in Sussex County, the results of which have not been published. According to these studies, more than 60 per cent of the children examined have never received dental care. Thus we have not only the annual increment of dental caries to consider but the accruement or back-log of some 4 - 8 years in these selected groups. Obviously the accruement would become increasingly larger among junior and senior high school students.

An effort has been made to evaluate statistically the actual situation as it applies to the need for dental services in Delaware for children between the ages of three and nineteen. Using the estimated pattern for the entire nation, and adjusting it to fit Delaware's population, it was learned that the time required to correct dental defects now present among these age groups would be close to 5 years

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with all the dentists in the state devoting full time on the basis of forty hours per week.

Under dental disease it is necessary to consider also the need for orthodontia service. Although this condition is not so wide spread as dental caries it does affect more than 50 per cent of our children, and in not a few cases is considered responsible for certain types of speech deviations. Although there is evidence that in severe cases of mal-occlusion, children do suffer emotional stress, and particularly during adolescence, those instances are not marked as in the case of cleft palate and cleft lip.

Both cleft palate and cleft lip and periodontitis are types of dental disease found among school children, but only a small number of children are affected as compared with those with dental caries or mal-occlusion. Unlike the cleft palate and cleft lip cases, the majority of whom have had treatment prior to entering school, children with periodontal disease do not often receive treatment other than in extreme cases.

Facilities to provide care for the medically indigent are woefully inadequate. Services other than extractions are available from only a few sources. The Board of Education in Wilmington and possibly one or two other school districts employ part time dentists; the State Board of Health utilizes the services of dental internes when they are available, but the major portion of the work is done by dentists in private practice with the project financed by local organizations. Also it is known that many dentists perform extensive services for which no fee is charged.

The need to provide dental care for those who cannot afford it has been given serious consideration by numerous organized groups. Of great concern however, are the number of children whose parents are financially able to assume responsibility but for whom nothing is done. Again referring to the studies made in New Castle and Sussex Counties, the figures compiled indicate that as many as 60 per cent of the school population may be classified in this particular group.

Recognition of the extent to which dental care is needed immediately gives rise to another serious problem: that of dental manpower. According to the American Dental Association,[3] Delaware has 143 dentists and the dentist-population ratio for the state as a whole is 1 dentist per 2,427 population. With the majority of dentists centered in Wilmington it is noted that the ratio is considerably increased in the lower two counties. Kent County according to the study has 1 dentist per 4,733 population and Sussex County, 1 per 3,018.

Paralleling the situation as regards dental manpower in the state is the shortage of dental hygienists for public health work. Because of the increasing demand for this type of worker in other fields, and a limited budget within the State Board of Health, it has not been possible to obtain the services of more than 15 - 20 per cent of the number actually needed. This is a serious handicap to the dental welfare of the children, since one of the many services she may render is the topical application of fluoride.

The use of topical application of fluoride, you will recall, was recommended some 10 years ago for its ability to reduce the annual incidence of dental caries from 40 - 50 per cent. Almost simultaneously pilot studies were undertaken in Newburg, New York, and Grand Rapids, Michigan to obtain further information on the subject of fluoridation of public water supplies.

Ten year studies have been completed in these two cities. The results along with studies made over a period of years by the Public Health Service leave no doubts in the minds of informed people concerning this most recent aid to combat dental caries. Tooth decay can now be reduced 60 - 70 per cent among children who have been drinking fluoridated water since birth and this fact should be the partial solution to our problems of dental care

for future generations of children and adults.

Unfortunately Delaware has moved slowly in its fluoridation program as compared with other states. The most recent report from the American Dental Association indicates that in more than 1000 cities throughout the United States more than 21 million people are now drinking fluoridated water. Newark is the only city in the state which has undertaken such a program and it has been in operation since 1950.

The Medical Society of Delaware, along with the Delaware State Dental Society, the Delaware Congress of Parent Teachers, and Commission on Children and Youth and other societies and organizations have all endorsed fluoridation of public water supplies, and many physicians have been active in its support in their own communities. However, all this and more is required if the children of this state, present and future, are to benefit from the two weapons now available to combat tooth decay — fluoridation of public water supplies, and topical application of fluoride.

In the State Board of Health, the Division of Oral Hygiene has always considered dental health education as one of its major activities. It continues in this status, though limited somewhat to children in the schools and their parents. With the change on emphasis indicated in recent years to promote programs of such magnitude as fluoridation programs, it becomes the responsibility of lay as well as professional groups to mobilize their forces for the community welfare. With all groups functioning under strong leadership, the solution should be found to this, one of our major problems—dental needs of children.

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RATIONALE OF THERAPEUTIC EXERCISES

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Therapeutic exercise is the treatment of disease and injury utilizing medically prescribed exercises. They are prescribed by the physician in much the same way as any other therapeutic agent such as drugs, x-rays, and braces, for the physical therapist and occupational therapist to carry out.

It is the attempted aim of this short paper to suggest a basis for rational prescription and application of therapeutic exercises in the habilitation and rehabilitation process of the disabled. This approach considers the whole disabled individual, an approach which laymen and specialists alike feel is very important to the treated individual.

An understanding of the main divisions of therapeutic exercise and the basic qualities of muscle function is important in prescribing treatment. It might be stated that unintelligent prescribing of exercises by the physician, and poorly applied techniques by the physical therapist and occupational therapist can actually have harmful effects on the patient as well as waste valuable time.

There are two main divisions of therapeutic exercise. The first is local exercise. These are given with the aim of effecting local muscle development. They are exercises that attempt to improve muscle action, relaxation and coordination, as well as strength in individual muscles or larger muscle groups of the body. Under this group falls muscle education or re-education with passive, active, and resistive types of exercises. The second main division is that of general exercises. The aim of these is principally to help produce physical improvement and accomplishment in the whole person. By this we mean, physical improvement and accomplishment in metabolism, circulation, and emotions which are so complexly involved in a person's will to progress, as well as improvement in muscle

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power, relaxation, and coordination. We could also include in this group functional activities such as gait training, activities of daily living with emphasis on feeding, the care and use of braces, and typing. It should be emphatically stated here that all exercises should be directed towards better function with thought given to both the psychological and physiological effects as well as that of motor function.

The most important component of exercises is muscle action. For clinical purposes we must differentiate and consider the following three basic qualities of muscle function:

1. *Muscle Power*: The ability of a muscle to contract or become tense. When a voluntary muscle contracts, the muscle belly draws the more movable attachment, the insertion, toward the more fixed attachment, the origin. This contraction is a normal reaction of a muscle to stimuli.

2. *Elasticity*: The ability of a muscle to give up contraction and to yield to passive stretch and assume a maximum length.

3. *Coordination*: The ability of the muscle to coordinate with other muscles in proper timing with appropriate power and elasticity. This coordination of proper timing and adequate response is done in cooperation and combination with many other muscles of the body.

The purpose of therapeutic exercises is to improve one or more of the above qualities. This is done by calling on properly graded and performed exercises to accomplish the quality sought.

Use of Exercise for Incoordination

Poor coordination may be due to incorrect timing and lack of quantitative cooperation of certain muscles even though power and elasticity are perfect. Incoordination can also occur before motor patterns are established. This is true of a normal individual learning new skills, for example, a child learning to walk, a person learning how to ride a bicycle — both good examples of normal incoordination. If motor patterns cannot be established, or if they have been forgotten, the symptoms of incoordination may appear. But when incoordination is present without involvement of muscle power and elasticity, the cause is most apt to be a lesion of the central nervous system.

Coordination may be improved by developing the impaired muscle function. When the lack of coordination is due to a lesion of the central nervous system, simple movement patterns should be performed. The simple patterns are then made complicated, step by step. In balance training, simple balance pictures are developed into more complicated balance performance.

When involuntary motions are present the lack of coordination is a consequence of inability to suppress movement. Irregular movements occur as a result. These involuntary movements can be reduced by learning how to suppress impulses to contract muscles, through relaxation. This relaxation can be achieved directly or indirectly, depending on the individual case, but rarely by reflex relaxation as was stated in Sherrington's Law of Reciprocal Innervation.

Poor coordination may also result from over-development of one quality in a muscle, or from poor elasticity or poor power. Attempting skills too far beyond one's capacity also may aggravate poor coordination. Therefore, in developing coordination by the use of therapeutic exercises, the gradual increase in difficulty of the task, the step-by-step procedure, is especially important.

Since movement by therapeutic exercise is a prime factor in the rehabilitation program, tests have been devised to make the prescribing and institution of exercises easier and more accurate, as well as to provide the physician with a good index of diagnosis, prognosis, and improvement under treatment. The tests may be divided into two categories: those to measure physical capacity which includes power, endurance, coordination, and mobilization; and those to measure functional capacity which includes self-

care activities, hand activities, and ambulation.

The tests to measure physical capacity are thought of as manual muscle tests and can be performed by the physician or therapist. The specific manual muscle test is important to the physician for the establishment of pre-treatment base lines. They also have comparative value when subsequent tests are made in measuring the effectiveness of treatment.

The tests to measure functional capacity can be called self-help, activities of daily living, or functional tests. It must be remembered that motion of itself is of no value unless it can be thought of in terms of functional or purposeful activity. A patient may be able to flex and extend the elbow, but this does not necessarily mean that he can feed or shave himself. So, in order to determine the extent to which he is incapacitated he should be given a functional activities test by the occupational therapist. The reason for this test is also to establish a base-line for treatment and to measure effectiveness of treatment. Another valid reason for a baseline measurement is that without improving strength of muscles or the range of motion in joints, patients learn to perform self-care activities with skilled functional training and guided practice.

The most important part of any exercise program for neuromuscular or long-term disabilities is parent and patient instruction. This instruction is geared to the patient so that he will know how and why he must continue his exercises, and to the parents so that they will be prepared to meet the patient's emotional, as well as physical needs. Parents must be thought of also as teachers as are the occupational therapist and physical therapist, but they can't teach unless they are familiar with the basic principles. Here the basic principles are knowing the needs of their children; what is to be expected of them; understanding their own limitations; and accepting themselves and their children as they are. These needs should be explained to the parents by the physician so that the family will best know how to handle the vast problems of the handicapped.

A simple and practical program of therapeutic exercises and rehabilitation activities can be prescribed as soon as the physician feels that the patient is ready to take part in a treatment program. By proper orientation of the patient and members of his family to the type of exercises and equipment needed for proper home care, much can be done to shorten the time spent in the hospital. At the same time there can be provided the necessary therapy for improvement and prevention of further crippling of those patients who are unable to go to some established rehabilitation center for continuous treatment and training.

In summary, the importance of accurate prescribing of therapeutic exercise by the physician is emphasized. He must differentiate and consider the three basic qualities of muscle function which are: power, elasticity, and coordination. There are tests, apparatus, exercise routines, and professional assistance from the physical therapist and occupational therapist that can assist the physician to attain the desired results. He must also consider the whole disabled individual and his family in order to better help the patient to live within the limits of his disability and to the maximum of his capabilities.

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HEALTH EDUCATION SERVICES

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Education as an approach to the goals of public health is recognized and accepted. The educational approach is employed when the goal is acquisition of

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information and change in attitudes and behavior.

Since a change of behavior is essentially a learning process, we must be constantly aware of how people learn and what experiences will cause a voluntary change as a result of meeting the individual's personal or social needs. Unfortunately for health workers, many people do not see good health in itself as a basic need. Recognizing this, we must utilize all known factors which motivate behavior changes. Therefore, health education becomes more effective when it is "behavior centered" rather than "information centered".

The team approach to health education has long been recognized as basic to sound activity. We recognize that health education is part of the daily job of every staff member of the State Board of Health as well as the responsibility of every member on the community health team. The role of the individual members will vary considerably depending upon their part in a program of health education or the activities which are parts of the program. The professional health educator because of his understanding of the educational approach may call on past experiences and his specialized training to guide the directions the educational activities may take.

What services does the Division of Public Health Education provide? In areas of health education extension and improvement within the State Board of Health, the health educator helps plan educational programs of various service divisions. Working with other division directors, he may help decide whom and what to teach and the objectives to be reached by the individual or group; suggest educational experiences which may be employed by other workers to involve the individual in the solution of his particular health problem; help organize these experiences to the level which will be meaningful to the individual; plan the educational content of the material essential to the experience; select the methods and tools to be used to provide the experience; assist the health worker in preparing for his role in the activity. Thus, the health educator is a behind the scene worker who helps the other health worker to do his job more effectively. Also, the health educator can contribute to the in-service training of other health workers by conducting workshops or similar sessions aimed at increased and more effective use of education as a method of carrying out health programs.

The Division of Public Health Education provides services for the State Board of Health which may be carried out more effectively through a central office. Such services include: film procurement and previewing; selection, distribution and storage of educational pamphlets and posters; production of State Board of Health pamphlets; design and layout for exhibits; maintenance of the film library and audio-visual equipment; organization and maintenance of a library which includes reference materials, textbooks and periodicals. All of these services are available to State Board of Health staff — many to other groups or individuals.

The health educator gives technical assistance to health workers by writing, editing and preparing materials for radio scripts, television programs, newspapers, bulletins, etc.; designing, preparing, producing and using educational tools and materials; using mass publicity media and audio-visual aids; assisting with arrangements for special meetings or programs; contacting resource persons and consultants for special activities.

In the community, health educators work on health problems with civic groups and other organizations. Lending guidance to the health education aspects of programs, the health educator may assist with community health inventories; assist with community organization to meet a specific health problem; interpret the function and promote the use of existing health facilities; assist various organizations with plans, organization and evaluation of health programs; and many other related activities. Along with other health workers, the health educator represents

the State Board of Health when health education matters are being considered.

The health educators work with other official and voluntary agencies that contribute to health education. Questions that often arise are: How can we coordinate our health education programs? How can we work in a cooperative way to better understand the health needs of the community? How can we bridge the gaps that may exist? What programs would benefit by increased mutual planning? What can we do to improve the quality of health education in the community?

Health education is a complex process. It involves many people, many activities, and many disciplines. There are no short cuts, gimmicks or other devices. To be effective, it must be based on the process of learning.

TEACHING NUTRITION TO PRENATAL PATIENTS

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"How can I help the prenatal patient who is getting no milk in her diet?" or "What can I suggest to make food taste better when a prenatal patient is not allowed salt?" These are the kinds of questions that public health nurses have about teaching nutrition to prenatal patients.

When a public health nurse visits a prenatal patient it is because the private physician has asked that the nurse carry the patient for regular prenatal visits, or because the patient plans to have a midwife delivery. The nutrition teaching that the nurse does is an integrated part of the total prenatal visit. It is working out with the patient ways that she can improve her diet in consideration of existing limitations such as established food habits and the economic situation rather than any formal teaching.

In addition to making the home visits in all areas of the state, the public health nurses conduct a weekly class for expectant mothers at the Christina Community Center in Wilmington. The nutrition consultant assists the nurse with the nutrition lesson in the series of sessions.

A part of the nutrition consultant's work with the public health nurses is to bring to them both scientific and practical information in the area of nutrition. Together the nurses and the consultant can plan what seems of most help in the nurses' work with patients.

How does this apply in the teaching of prenatal nutrition? The scientific information on the importance of good prenatal diet and the nutritional requirements for pregnancy[1] are used as a basis for teaching. Then we must determine how to use our technical information in a practical way. For example, the recommended daily allowance for vitamin C for the prenatal patient is 100 mg. daily. An easy dietary recommendation would be three-fourths cup of orange juice daily, but would it be sensible to recommend that for every patient? It may be that tomatoes, raw cabbage or turnip greens are the most available source of vitamin C for some patients. Also, these foods may be a part of the patient's regular food pattern, so the nurse makes her suggestions accordingly. It is when the nurse uses the scientific information in a way that meets the needs of the life situation that she finds that it becomes really effective in helping the patient not only to understand but to use nutrition advice.

We have not prepared a special leaflet on diet for pregnancy. The nurses are encouraged to use a food guide that is practical for the entire family with suggested changes for the woman during pregnancy. Prenatal patients being part of a family are not likely to have an entirely different diet. Then again, there is the opportunity to teach good family nutrition during the prenatal visit. We are presently using the "National Food Guide",[2] a leaflet which includes the familiar "Basic 7" chart. This leaflet has a fairly complete list of foods divided according to nutritive value. There is variety enough within each food group that it is possible to select some foods that will be available

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and acceptable to almost all families. However, the leaflet itself just handed to the patient is not of too much value. Its best use is as a supplement to the nurse's teaching.

Special diets such as low calorie or low sodium diets are always prescribed by the physician. The nurse will interpret the special diet to the patient only if the physician requests it. The nutrition consultant is available to help the nurse with these cases if indicated.

In the area of special diets it is important to help the prenatal patient understand what foods she should eat as well as the foods that are restricted. Especially when calories are restricted foods must be carefully chosen to obtain all necessary nutrients.

It is helpful if the diet list includes as much variety as possible so the patient can have some choice. Sometimes the diet as prescribed gives the patient no choice. An example is a low calorie menu plan that included cucumbers, radishes and watercress as the only vegetables to be used. One cup of each was allowed daily. Now it is obvious that the idea in mind was to furnish considerable bulk with no significant calorie value. It is true that cucumbers, radishes and watercress add variety in flavor and texture to menus while being low in caloric value. However, most of us would find it monotonous to be limited to so few vegetables and might encounter some difficulty eating a cup of each in one day. Why not have a long list to choose from such as asparagus, broccoli, lettuce, any greens such as spinach, kale, turnip greens, and cabbage and tomatoes, to mention a few? All of these vegetables are low in calories and furnish bulk along with vitamin and mineral value. In addition, there seems to be some psychological value in having the patient feel that she has a wide choice of foods and is not extremely limited.

With some patients the economic factor may be a limitation. Dietary suggestions must be in the realm of possibility for the patient. An exaggerated example comes to mind of a diet sheet once used in a clinic for indigent patients. Lamb chops and squab were two of the recommended meats on the list. The diet sheet also contained a word of caution to the patient to avoid anchovies and olives among other things. It is not surprising that most of the patients' records contained a notation "Patient does not follow diet". No one had intended to be impractical — the list simply had not been checked before it was handed to patients, and there was no individual interpretation of the diet.

We are always concerned about ways to make our work with patients more effective. Some results of a recent study[3] done in a prenatal clinic in a southern industrial city have been of interest. An attempt was made to improve the food intake of patients in the clinic and to determine some of the factors that would motivate patients to modify their diets. It was found that when patients had a real understanding of the relationship of diet to the course and outcome of pregnancy they were more likely to make dietary changes. Some of the patients were interested in following dietary recommendations because they wanted to retain an attractive figure following delivery. In this study when dietary recommendations were made with recognition of the patient's economic means, educational level, existing dietary patterns and other social and cultural forces the cooperation in modifying diets was surprisingly good. Such studies encourage us to continue to make our nutrition teaching practical.

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CONSULTANT SERVICES FOR PUBLIC HEALTH NURSES

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It has often been said that public health nurses, in carrying out a generalized public health nursing service, encounter all the ills to which man is heir!

That statement may be a bit exaggerated, but it still contains much truth. Not only does the patient in his home present any or all of the manifestations of his illness but also the social, economic and emotional factors are many times more or less apparent. That these factors play a large part in the health situation of the patient and of his family cannot be denied. Add to this the fact that the public health nurses participate in carrying out the program of prevention of illness and of health promotion and it can be seen that public health nursing has many facets.

This throws a bit of light on what kind of person the public health nurse must be if she is to be truly helpful, and what her equipment must be in the way of intellectual background and understanding.

We'll assume that the public health nurse has a certain core of knowledge which she has gotten in the school of nursing, and that in passing the examinations of the State Board of Registration of Graduate Nurses she has proved that she has learned the prescribed courses of study. But what of the constant change in the treatment of illness due not only to the discovery and perfection of ever newer medications, but also to the advancing knowledge of the underlying causes of human behavior? How does the active public health nurse keep abreast with this steady tide of advancement?

First, through the persons most closely associated with the public health nurse in her daily work, the nursing supervisor and the health officer. The latter, through his functions of directing the program of the health units, stimulates and broadens the public health nurses' concept of the field of general public health. The public health nursing supervisor works with the nurse in helping her to carry out the public health nursing objectives and thereby in giving better services to the families in her care.

But what of the fields of special knowledge and skills where even the qualified public health nursing supervisor needs help? This is where the special consultants play an important part on the staff of agencies which employ public health nurses.

Broadly speaking, there are two kinds of consultants who give consultant services to public health nurses: consultants who are nurses and who have had additional preparation and experience in one of the special fields of nursing such as tuberculosis nursing, maternal and child health nursing, orthopedic nursing, or other fields of nursing, and who use their knowledge and skills in an advisory capacity to the nursing personnel to keep them abreast of the changes and advances in the nursing field. The other type of consultants are persons who are qualified members of other professional disciplines such as nutritionists, medical social workers, etc., and who are available to and are used by the public health nurses on a consultant basis.

Consultant or advisory services are given through nursing staff education sessions, and also by means of conferences with individual nurses in which the case records of families being served by the public health nurse are reviewed and studied with the purpose to determine the best way in which the public health nurse can help the families to meet their problems.

The value of these consultant services will not be underestimated when one considers the social and economic problems in many of the families served by the public health nurses, and the many mental and emotional factors inherent in illness, considering not only the patient but also the family situation.

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DERMATOLOGICAL SURVEY OF SHAVING TECHNIQUES*

(Clinical and Laboratory Observations)

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The effects of soaps, soap constituents, shaving preparations, water and other liquids in softening the keratin of the hair and upon the skin when used during the daily shaving process constituted the basis of the extensive clinical and laboratory evaluation outlined in this paper.

We also studied the effects of repeated cutting and shaving of the hair shaft itself, the variations in the quality and quantity of sebum secretions, as well as the variations in skin sensitivity.

The purpose of the study was to find methods of improving shaving techniques, lessening the amount of damage done the skin surface by repeated, improper shaving or by harmful agents, the speeding up of shaving time, and the counteracting of after-shaving sensitivities caused by a variety of improper shaving practices and poorly concocted shaving ingredient formulae.

Our study, which extended over a nine-month period, employed 271 test subjects ranging in age from 17 years to 89 years. A cross-section of American men was enlisted to serve as subjects in the shaving tests. They were of all walks of life, engaged in various yet typical occupations. Lawyers, doctors, bankers, clergymen submitted to the periodical examinations along with men whose occupations subjected them to more rigorous exposure—telephone linemen, tool grinders, blast furnace operators, foundrymen, painters, masons, bakers, welders, policemen, firemen, chemical workers, truck drivers and a varied assortment of clerical workers, salesmen and store managers.

Representative numbers of 26 nationalities were included in the testing group. Ninety and one-half per cent of the participants were white, with 8.0% negro and 1.5% yellow.

AGE OF MEN TESTED

19 years or under	2.0%
20 to 29 years	9.0%
30 to 39 years	14.5%
40 to 49 years	20.5%
50 to 59 years	22.0%
60 to 69 years	21.0%
70 to 79 years	8.5%
80 to 89 years	1.0%
Age unknown	1.5%

The majority of the men under test were in the 30 to 69-year bracket.

Skin conditions of men tested were: Dry, 51.0%; Oily, 37.0%; Normal, 12.0%; also, Sensitive, 64.0%; Non-Sensitive, 36.0%.

Beard conditions of men tested were: Light, 21.5%; Medium, 25.0%; Heavy, 53.5%.

Present-day conditions of employment, together with a growing reluctance on the part of the male to seek outdoor activity, may have some effect upon the type and toughness of the beard growth. Of waking hours the following table shows the

ENVIRONMENTAL CONDITIONS OF PRESENT-DAY MALE

10%	indoors	and 90%	outdoors		3.5%
20%	"	" 80%	"		8.5%
30%	"	" 70%	"		7.5%
40%	"	" 60%	"		1.0%
50%	"	" 50%	"		17.0%
60%	"	" 40%	"		1.5%
70%	"	" 30%	"		9.5%
80%	"	" 20%	"		17.5%
90%	"	" 10%	"		34.0%

Condensing the above figures we find that 19.5% of the men tested work or play out-of-doors over 70% of the time; 19.5% are outdoors an average of 50.0% of the time and 61.0% remain indoors over 70.0% of the time.

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OUTDOOR EXPOSURE AND RELATIVE BEARD TYPE

Outdoors	Heavy	Medium	Light
90%	60.00%	20.00%	20.00%
80%	62.50%	18.75%	18.75%
70%	41.67%	33.33%	25.00%
60%	100.00%	—	—
50%	54.54%	21.18%	24 28%
40%	100.00%	—	—
30%	50.00%	27.27%	22.73%
20%	47.50%	33.33%	19.17%
10%	47.14%	27.14%	25.72%

Outdoors	Heavy	Medium	Light
90 - 70%	54.54%	24.24%	21.22%
60 - 40%	59.26%	17.59%	23.15%
30 - 10%	47.66%	28.91%	23.43%

To further explore the causes of beard toughness, age tables were compiled with particular attention to the relationship between the age men began to shave and beard toughness. The following table shows the age at which each man in the test group first shaved:

AGE OF INDIVIDUAL WHEN SHAVING BEGAN

10	years	00.5%
11	"	00.5%
12	"	01.0%
13	"	02.0%
14	"	04.0%
15	"	13.0%
16	"	16.0%
17	"	18.0%
18	"	13.5%
19	"	20.0%
20	"	08.0%
21	"	03.0%
22	" or over	00.5%

The earliest instance showed a starting age of 10 years and the latest a starting age of 24 years.

A comparison calculation was performed and the following results obtained:

COMPARISON OF STARTING AGE AND BEARD TOUGHNESS

Starting Age	Heavy	Medium	Light
10 years	100.00%	—%	—%
11 "	100.00%	—%	—%
12 "	100.00%	—%	—%
13 "	50.00%	50.00%	—%
14 "	60.00%	40.00%	—%
15 "	72.37%	16.59%	11.04%
16 "	40.75%	25.92%	33.33%
17 "	34.78%	34.78%	30.44%
18 "	50.00%	33.33%	16.67%
19 "	77.78%	11.11%	11.11%
20 "	12.50%	50.00%	37.50%
21 "	—%	33.33%	66.67%
22 "	—%	—%	100.00%

The study revealed that many youths began to shave before the actual necessity to do so, proving that the earlier a boy starts to shave the heavier his beard will become. It has long been known that different hair coloring denotes different hair types. The observation of pure racial types has made it possible to segregate human hair into three general categories according to individual characteristics: I. The tightly curling type, "kidney shaped" in cross-section, with its medulla or hollow inner tube partially collapsed and containing no "pith" or inner substance. II. The "lank" and usually very long variety, round or very nearly so in cross-section, and with the medulla tube well defined and filled with "pith". III. The wavy, smooth, or silky type; oval in cross-section, with a marked medullary tube relatively clear of inner "pith". Classes I and II vary little from the uniform black, whereas a vast color difference is observed in Class III, where the range is from almost the deepest hue of black to the lightest shade of blondness.

Examination of the test subjects with respect to hair pigmentation revealed the subsequent data:

Black	23.5%
Dark Brown	18.0%
Light Brown	7.0%
Sandy	0.5%
Red	2.0%
Blond	2.0%
Gray	36.5%
White	10.5%

Comparing this information with data gleaned from the numerous test histories concerning beard toughness, the following table depicts the effect of hair color or type upon the toughness of the beard and subsequently the relative ease or difficulty encountered in shaving.

COMPARISON OF BEARD PIGMENTATION AND BEARD TOUGHNESS

Hair Color	Heavy	Medium	Light
Black	50.00%	25.00%	25.00%
Dark Brown	47.07%	35.29%	17.64%
Light Brown	———	60.00%	40.00%
Sandy	100.00%	———	———
Red	66.67%	———	33.33%
Blond	50.00%	———	50.00%
Gray	56.00%	22.00%	22.00%
White	56.00%	31.00%	13.00%

Ruddy whiskered subjects lead in beard toughness. An evaluation of the case histories showed that these subjects began to shave at an early age.

It was noted also that 78.5% of the subjects have a habit of shaving in the morning, while 17.0% shave in the evening, or

before retiring. The remaining 4.5% shave at no set time of day.

The choice of beard softening products used generally was an important revelation in the survey. The following table gives the results of the findings.

CURRENT CHOICE OF BEARD SOFTENING PREPARATIONS
(At start of test)

Lather Creams	33.00%
Lather Soaps	25.00%
Lather Powders	2.50%
Aerosol Lather Products	20.50%
"Brushless" Creams	9.50%
"Hand" or "Bath" Soaps	9.50%

Nearly 10 per cent of the men participating in the test professed to use common hand soap as a regular means of beard softening.

Types of products used during the study included soap lather applied with a shaving brush, canned aerosol lather, lather creams applied with a shaving brush, the brushless type of lather cream, and a brushless cream containing phenol.

Since many of these products are sold with a wide variety of advertising claims, we sought to determine if any actually protected the skin while shaving, prevented dryness, staved off wrinkles due to excessive dryness caused by improper shaving, and otherwise helped to keep the skin clear, fresh and healthy.

We also tried to evaluate whether any of these agents afforded antiseptic action. This constituted a rather exhaustive survey of all products offered the shaving public as beard softeners.

Eight of the most representative and widely used preparations were selected. A supply of these materials was secured from regular retail stocks destined for over-the-counter-sale. The containers were masked in such manner as to completely eliminate any possibility of brand identification.

The clinical test required that each subject report back to the clinic on an average of 14 days for re-examination during the 9-month period, the purpose being to constantly change the type of product under evaluation on each subject. All-inclusive case history forms were maintained on each subject so that when the final tabulations were rendered the aggregate would show the kind of shaving preparation best suited to remove beard growth faster, yet cause less skin irritation and less skin-tissue loss.

The case history forms included a wide variety of questionnaire data pertinent to the discussion. Records were kept of the patient's name, age, sex, color, race, national background, occupation (indoors-outdoors , family history (dermatological , past history (dermatological), allergies, skin type (dry-oily-normal-sensitive, non-sensitive), present status of skin, quality of elasticity of skin, beard type (light-medium-heavy), type of shaving product used, type of razor, duration of shaving time, number of shaves per day, week; closeness of shaving, after-effects of shaving, antiseptic action, condition of skin before and after shaving, swiftness of beard growth.

Patients were instructed to note the time required to obtain a clean shave during the use of each of the preparations. They were also advised to note any discomfort, or any pulling effects during the passage of the razor, and if there was stinging following the use of test preparations.

They were instructed to be aware of time consumed in preparing the beard for shaving, water temperature, razor-blade sharpness.

Successful, comfortable, and trouble-free shaving is dependent upon several important factors correlated with three phases of the shaving operation. Phase One, the preparatory stage, should include a thorough washing of the face. It is important to remove grit, which impairs the shaving qualities of the blade and hastens dulling. Also the removal of accumulated sweat and sebum from the skin and hair itself will hasten the "softening" of the beard by increasing the absorption tendencies of the hair. The washing operation should be followed by copious rinsing with clear warm water.

Phase Two should include the application of a shaving preparation and plenty of warm water. The choice of a shaving preparation is very important for satisfactory shaving. It should have emolient qualities which serve to reduce the amount of damage caused by the passage of the razor over the skin. It should be of a consistency which fosters the retention of water and minimizes the drying out tendencies.

In the shaving act itself the proper angle of the razor in relation to contact with the skin is of prime importance. However, despite intricate and involved measurements devised to ascertain the most efficacious position of the razor, the rule of thumb method of determining the proper position seems to be most advisable. The resultant sensations of irritation caused by excessive razor "drag", discomfort due to various improper uses of the razor will serve to condition the shaving habits and automatically produce relatively proper shaving positioning of the blade.

During the shaving process it is important to rinse and wet the razor frequently. Shaving the easiest portions of the face first gives the preparation a longer time to effect a more complete soaking of the hair located at the most difficult regions of the shaving area. Care should be used in stretching the skin, particularly over the bony portions of the face, for severe damage to the skin can result. This is also true in the application of pressure which, in many cases, causes severe "razor burn" and irritation.

Phase Three should include some means of closing the pores of the face and of repairing the damage caused by the shaving act. Minute particles of the outer layer of the skin, particularly the protrudent portions of the hair follicles, are planed off by the passage of the razor. These minor abrasions are often the cause of severe discomfort and many times lead to skin troubles which become chronic and very difficult to overcome.

Keratin chiefly makes up the chemical composition of hair. It is an organic compound containing nitrogen and sulfur. Keratin is completely insoluble in water, but is a great water absorber. This compound is soluble in strong alkalis. Water absorption lessens the tensile strength and the hardness of hair.

An important factor in the delay in water absorption, while lathering, is caused by the sebaceous secretion in the hair. To decrease the hard condition of the hairshaft is of major importance in preparing the face for shaving. The temperature of the water is of great importance in governing the length of time before the softening of the hair is complete. The softening agents in the shaving preparation are also taken into consideration.

It has been found that 120°F is an optimum temperature. This temperature makes it possible to prepare the hair for shaving, or to soften it, within a matter of seconds if the proper type of shave cream is used. The use of colder water, especially in the case of grey or white hair, would increase the preparation time.

The formula of the lather preparation is of importance in hair softening, because the agents must emulsify the waterproof sebum that cover the hair. Emulsifications aids the hairshaft in absorbing the water.

Shaving preparations to be satisfactory must soften the hair speedily, must not cause irritation of the skin, must not dry rapidly on the skin, and must prevent delay in the softening of the hair by the water. These factors depend on the chemical composition. Non-irritation and emulsification are among the most important characteristics of a good shaving preparation.

It has been found that hand soaps should not be used for shaving as they contain excessive alkali agents.

While shaving, both the razor and the face should be kept constantly wet with hot water. The less difficult sections of the face should be shaved first. In that manner, the more difficult sections will have a longer softening period.

After shaving it is necessary to use a shaving lotion or preparation to help condition the skin. If the shaving preparation contains a formula incorporating healing, soothing emolients, patients were advised to rub the remains of the cream into the skin after shaving. Product A, containing phenol for mild antiseptic action, was found to include these properties. In this case no after-shave lotion is necessary.

OBSERVATIONS

There are a number of influences that have direct bearing on the problem of shaving. The external influences are weather exposure, solar radiation, facial preparation, passage of the razor over the skin, and the after-shave lotion or agent. The internal influences are conditioned by diet, excretion of perspiration and sebum, growth and restoring of epidermis and hairshaft, circulation of the true skin.

There are two kinds of hairshafts: the finer type with a diameter less than 0.031 mm, and the coarser type with a diameter of not less than 0.095 mm. It is this coarser type of hair that causes most shaving problems. In each individual the coarser hairs vary both in distribution and location on the face.

Immediately after shaving there is the fastest rate of hair growth. Then the rate of growth dwindles down to a normal rate, which is about 10 - 11 mm. a month. Shaving does not affect the thickness or the normal rate of hair growth, except when shaving is started at a premature age.

The angle of facial hair growth varies with each subject and also with the various portions of the face. The actual range between the hairshaft and the epidermis is ordinarily from 30 to 60 degrees, except near the anterior cervical triangle where the angle may be nearly flat, and occasionally on the curvature of the skin where the angle may be perpendicular.

Except in keratosis pilaris the real cause of ingrowing hairs is not known. Traumas of skin surrounding the hairshafts and wounds through the corium above the hair roots seem to have a strong relationship to the use of sharp razor blades. Experiences indicate that trauma occurs less often when a dull razor blade is used.

The surface of skin is irregular. Therefore when shaving, stretching of the skin will make the surface of the skin smooth and cause the disappearance of waves in the skin. But severe stretching of the skin causes nicks and cuts when shaving because it results in the protrusion of the skin at the site of the hair follicles. This produces a goose flesh surface on the skin.

BACTERIOLOGICAL EXAMINATIONS

As a measure of "control", extensive bacteriological and bactericidal examinations of the eight products used in the survey were made. Actual shaving tests were conducted by a staff of technicians under the direction of Cyril C. Sullivan, B.S., R.S., who submitted the following report:

The tests were run following the usual and customary manner of shaving. The objects of the bacterial tests were to ascertain the bacteria kill or removal that could be attributed to the use of the particular cream under test. The first series of examinations were directed to determine if the creams were, in fact, bacteriostatic, and whether or not the creams possessed bactericidal properties. In this work a 1:100 dilution of the creams were made up into sterile tubes with buffered sterile distilled water used as a diffluant. 1 ml. of this solution was plated on sterile nutrient agar and incubated at 37°C. The American Public Health Association procedures for the examination of waters were followed. Controls were run consisting of 1 ml. buffered sterile distilled and 1 ml. of a 1:10 solution of pure castile soap. Plates were read at 24 hours and 48 hours incubation. The 48-hour readings are as follows:

A.	Cream	pH of dilution	6.2	–	
B.	"	pH " "	6.0	–	
C.	"	pH of solution	8.0	–	
D.	"	pH " "	7.0	–	
E.	"	pH " "	7.0	+	1 Colony
F.	"	pH " "	8.0	+	1 Colony
G.	"	pH " "	6.0	+	3 Colonies
H.	"	pH " "	7.0	+	1 Colony

To determine the inhibitory properties of the 8 creams under test a nutrient agar solution was prepared and innoculated with a pure culture of staphylococcus aureus. This was incubated for 24 hours and 1/10 ml. introduced on to the surface of the 10 plates as above. Three additional plates of sterile nutrient agar were prepared and dilutions of 1 ml., .5 ml. and .1 ml. were prepared using 10 ml. sterile buffered distilled water. After 48 hours these plates showed staphylococcus aureus had developed to count of 2700 per ml.

The 10 test plates having been innoculated with this solution containing 2700 staphylococcus per ml. in an amount of 1/10 ml. per plate were incubated for 48 hours at 37°C. with the following results:

A.	Cream	—	Colonies
B.	"	8	"
C.	"	—	
D.	"	—	
E.	"	75	Colonies
F.	"	4	"
G.	"	6	"
H.	"	—	
I.	Control	—	
J.	Sterile Distilled	185	Colonies

It may be concluded from the above that not all of the creams are bacteriostatic; in fact, 1 of the aerosols evidenced a lack of such properties. All creams evidenced a definite bactericidal action, all showed distinct inhibitory properties. Products A, C, D, and H appear to be particularly effective in this respect.

Further tests were made with the shaving creams actually in use. In the actual shaving process the customary and usual practices were followed. Cambridge tap water was used, paper and cloth towels used, and in two instances soiled towels were used, which appeared to greatly increase the bacterial flora found on the face immediately after shaving. Two types of individuals participated in the tests, one type being office workers, whose occupation kept them inside of buildings during the major portion of the day. The other type were outside workers — those traveling on subways and otherwise mingling with crowds.

Swabs were taken, as indicated below, from 1 square inch of that area of the face shaved or to be shaved. Average results, before and after shaving, were as follows:

TOTAL BACTERIA PER SQUARE INCH

Using Cream	Office Worker		Outside Worker	
	Before	After	Before	After
A	400	220	600	190
B	400	300	240	25
C	210	50	1500	10
D	100	40	320	0
E	310	40	2500	150
F (aerosal)	2000	400	2000	1250
G (aerosol)	1000	50	1250	10
H (aerosol)	20	10	120	10

In the case of the towels used, 1 square inch of paper towel yielded a count of 30 total bacteria per square inch. In the case of clean cloth towels, 20 bacteria per square inch were found. In the case of a used towel, 1250 bacteria per square inch was found.

When a soiled cloth towel was used to dry the face after shaving and rinsing an average of 40% more bacteria was found on the face than when a clean towel was used.

At approximately 1 hour after shaving that area of the face so shaved appears to exert a natural bactericidal or bacteriostatic action to airborn organisms. In all cases where the swab test showed relatively high counts immediately after shaving there was somewhat of a reduction in total count at 2½ hours and a further reduction at 5½ hours, the bacteriostatic action appearing to arise from the exudation of the sweat glands of the face. However, as this was not an object of this particular study, the work in this respect is not being reported in detail at this time.

DISCUSSION

Various factors were considered in the final evaluation of the eight preparations under scrutiny: the actual shaving qualities, the efficacy of the product as a beard-softening agent, time required for beard conditioning, closeness of shave, ab-

sence of "razor pull", and time required for beard removal.

Additional factors considered were: improvement in skin condition, relief from irritation during and after shaving, absence of stinging effects, absence of drying effects, emolient and antiseptic action of the product upon the epidermal surface, healing qualities, and facial appearance after shaving.

In order to evaluate these factors with regard to each product under study it was necessary to employ the unique Walker scoring system. The series of re-examinations served to supply the data which was tabulated from each patient's report.

A tabulation of the scoring with regard to each product is incorporated in the following table. The plus sign shows the positive effects the products had on each patient tested. The minus sign indicates the negative effects. The total of the plus factors, both cosmetic and shaving, are compared with the total of the minus factors in each category. They show how each product rated.

Product	+Cosmetic	+Shave	+Total
A.	970	690	1660
B.	120	120	240
C.	400	360	760
D.	240	140	380
E.	100	60	160
F.	120	100	220
G.	230	110	340
H.	160	180	340

—Cosmetics	—Shave	—Total	Final Score
40	40	80	+ 1580
210	180	390	− 150
80	80	160	+ 600
50	70	120	+ 260
150	100	250	− 90
140	140	280	− 60
80	80	160	+ 180
120	80	200	+ 140

The following tabulation indicates the positive and negative findings made on each product in percentage form with relationship to its shaving and cosmetic qualities:

Product	+Cosmetic	+Shave	+Average Total
A.	92.10%	78.90%	85.50%
B.	26.31%	21.05%	23.68%
C.	50.00%	46.87%	48.43%
D.	42.10%	31.57%	36.83%
E.	29.41%	11.76%	20.58%
F.	16.00%	16.00%	16.00%
G.	30.30%	24.24%	27.27%
H.	24.13%	31.03%	27.58%

—Cosmetic	—Shave	—Average Total	+ or — Total
2.63%	2.63%	2.63%	+ 82.87%
47.36%	42.10%	44.73%	− 21.05%
6.25%	6.25%	6.25%	+ 42.18%
10.52%	15.79%	13.15%	+ 23.68%
29.41%	23.52%	26.46%	− 5.88%
24.00%	24.00%	24.00%	− 8.00%
9.09%	9.09%	9.09%	+ 18.18%
17.27%	13.79%	15.53%	+ 12.05%

Inasmuch as time is an important element in the ultimate consideration of the efficacy of a shaving preparation, the following data was compiled. The preconceived patterns of logic in relationship to such factors as type of razor used, age of shaver, and type of preparation used, were borne out conclusively. The older men, and in most cases these were the users of the "straight" razors, required the longer shaving periods. Men with a heavy beard or a tender skin also required a longer time to accomplish the chore.

Shave Time		Patients
1	Minute	1.00%
2	"	6.00%
3	"	13.00%
4	"	9.50%
5	"	26.00%
6	"	4.50%
7	"	8.00%
8	"	5.00%
10	"	16.00%
12	"	2.50%
15	"	6.50%
20	"	2.00%

A perusal of the case histories showed that men using the brushless type of cream shaved 47 per cent faster than those using common soaps, aerosol types or lather creams with a brush. The ease of application, more thorough beard softening qualities and better skin conditioning properties in product A containing phenol resulted in faster shaving periods.

Occupations rather than toughness of beard was the governing factor in the frequency of shaving.

Shaves Per Week	
2	5.60%
3	6.74%
4	30.33%
5	.65%
6	1.04%
7	51.80%
8	1.69%
10	2.15%

Thus, based upon the above findings only a little over half of the men shave on a daily schedule.

Men with coarse, thick beards experience more discomfort while shaving. They reported a pulling sensation upon the skin. This sensation was caused in most instances by a overly dull or sharp blade improperly used and a deficient softening agent.

The study showed that all types of razors when removing the beard also removed small quantities of skin. The quantity of hair and skin removed by shaving was measured after this accumulated material was washed from the razor with a lather solvent. The material was rinsed by decantation with the same solvent. It was noted that the difference between the compacted hair chips and the compacted skin particles was quite marked. A standard textile pick counter was used for the examination of the freshly shaved skin.

Of the shaving preparations tested, product A, containing phenol, produced the least amount of skin loss. Rubbing the remains of this formula (A) into the skin after shaving produced a mild antiseptic action, as well as an absence of after-shave stinging. This was attributed to the action of phenol. A marked improvement in skin tone and texture was noted as well, along with a decrease in skin dryness which contributes to shave wrinkles.

SUMMARY

1. The present study on 271 subjects was undertaken to assess the effects of repeated shaving and cutting of the hair-shaft, as well as to improve shaving techniques, lesson the amount of damage done the skin by shaving, and to counteract after-shaving sensitivities.

2. The action of phenol in shaving preparations also was studied. Results indicate that:

A. A proper shaving formula is necessary to produce swift, successful, comfortable and trouble-free shaving.

B. Beard softening agents to be acceptable must possess a varied number of shaving and cosmetic properties to help improve the condition of the skin, afford relief from irritation during and after shaving, as well as produce a close, fast shave.

C. In the present study product A, a brushless cream containing phenol, gave the best overall results. It proved 82.87% effective, as compared with the second product (C) which was 42.18% effective.

D. The inclusion of phenol in shaving preparations proved most effective, affording a mild antiseptic action and an absence of after-shaving stinging.

The product A used in this study was furnished by the Barbasol Company, Indianapolis, Indiana.

A home care program for the tuberculous rests on the assumption that an intelligent, cooperative patient, partially restored to health, can be treated for part of his illness at home to his ultimate benefit. Editorial, GP, Jan., 1954.

* * *

A careful study of mass X-ray surveys (in Connecticut) covering more than 400,000 persons in a period of six years has shown that the highest percentage of cases of tuberculosis in men is found among service workers (such as barbers, cooks, waiters, janitors, etc.). In women, personal service workers, such as beauty operators, cooks, waitresses and practical nurses show the highest percentage incidence, but far below that of men in the same occupational classification. Paul S. Phelps, M.D., The John N. Wilson Memorial Lecture, April 30, 1954.

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Editorials

DELAWARE STATE MEDICAL JOURNAL

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VOL. 27 SEPTEMBER, 1955 No. 9

STATE BOARD OF HEALTH NUMBER

Once again, for the 26th year, this issue of THE JOURNAL presents the activities of the Delaware State Board of Health. This feature is one not emulated by many of the other state medical journals, but we find it profitable to publish it because it benefits the department, the profession, and the public. The material this year maintains the high standard that has been set forth these many years.

THE JOURNAL is happy to extend to Dr. Floyd I. Hudson, the Executive Secretary of the Board of Health, and to all his collaborators, its thanks for the material they have contributed.

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MONDAY, OCT. 17, 1955

3:30 p.m.—Registration of Delegates.

4:00 p.m.—House of Delegates Meeting.

6:30 p.m.—Supper for Delegates.

8:00 p.m.—Registration. General Meeting.

8:30 p.m—Invocation, Rev. Alfred R. Shands, III, Holly Oak.

8:35 p.m.—Welcoming Remarks — Norman L. Cutler, M.D., President, New Castle County Medical Society; Victor D. Washburn, M.D., President, Delaware Academy of Medicine.

8:40 p.m.—Presidential Address — Lewis B. Flinn, M.D., Wilmington; The Medical Society of Delaware.

9:00 p.m.—Panel Discussion: Vitamins and other Nutrition Factors in Clinical Practice.
This Panel will concern surgeons, obstetricians, pediatricians, etc., as well as internists and general practitioners.

Moderator—LEWIS B. FLINN, M.D.

Robert S. Goodhart, M.D., Scientific Director, National Vitamin Foundation, New York; Winslow Tompkins, M.D., Obstetrician, Jefferson Medical College, Philadelphia; Robert G. Ravdin, M.D., Assistant Professor of Surgery, University of Pennsylvania; Robert Kaye, M.D., Assistant Professor of Pediatrics, University of Pennsylvania.

10:30 p.m.—Adjournment — Refreshments.

TUESDAY, OCT. 18, 1955

9:00 a.m.—Registration. General Meeting.

9:30 A.M.—Report of House of Delegates, Secretary Norman L. Cannon, M.D., Wilmington.

9:40 a.m.—Prolonged Survival in Malignant Lymphoma, John F. Hynes, M.D., Wilmington, Consultant, Tumor Service, Memorial Hospital.

10:00 a.m.—Stein-Levinthal Syndrome: Preliminary Report, Oscar N. Stern, M.D., Wilmington. Chief in Obstetrics-Gynecology, Delaware and Memorial Hospitals.

10:15 a.m.—Exhibits.

10:45 a.m.—Panel Discussion: Current Concepts of Virus Disease in the Delaware Area.
This Panel will include hepatitis, poliomyelitis, psittacosis, mumps, and a new group of R.I. virus diseases.

Moderator—LEWIS B. FLINN, M.D.

Floyd I. Hudson, M.D., Executive Secretary, Delaware State Board of Health; Joseph Stokes, M.D., Professor of Pediatrics, University of Pennsylvania; Werner Henle, M.D., Professor of Virology, University of Pennsylvania; Maurice Hilleman, Ph.D., Assistant Chief, Department of Virus and Rickettsial Diseases, Army Medical Service School, Washington; Dorothy Horstmann, M.D., Associate Professor of Preventive Medicine, Yale University.

12:15 p.m.—Election of President — elect for 1956 (New Castle County).

12:30 p.m.—Adjournment — Exhibits.

1:00 p.m.—Luncheon, as guests of the New Castle County Medical Society.

2:00 p.m.—Recent Concepts in the Management of Staphylococal Infections, William J. Holloway, M.D., and Elvyn G. Scott, M.T., Wilmington, Assistant in Medicine, and Bacteriologist, Delaware Hospital.

2:15 p.m.—Antibiotic Therapy of Skin Diseases, Lawrence Katzenstein, M.D., Wilmington, Dermatologist, Delaware, Memorial, and Wilmington General Hospitals.

2:30 p.m.—The Home Care Program and Other Aspects of Long-Term Illness, Ruth B. Freeman, R. N., Associate Professof of Public Health Administration, Johns Hopkins University.
Discussion: Victor D. Washburn, M.D., Richard Griffith, Edgar Hare, Jr., Wilmington.

3:10 p.m.—Exhibits.

3:40 p.m.—Panel Discussion: Recent Trends in the Management of Vascular Disease.
This Panel will include cerebral aneurysms, surgical and nonsurgical management of arterial and venous thrombosis, prevention of rheumatic heart disease, cardiac surgery, cerebral vascular insufficiency.

Moderator—LEWIS B. FLINN, M.D.

John P. Hubbard, M.D., Professor of Preventive Medicine, University of Pennsylvania; Henry T. Bahnson, M.D., Associate in Surgery, Johns Hopkins University; Samuel B. Hadden, M.D., Associate Professor of Psychiatry, University of Pennsylvania; Livio Olmedo, M.D., Neurosurgeon, Wilmington; G. Barrett Heckler, M.D., Internist, Wilmington; Charles P. Bailey, M.D., Professor of Thoracic Surgery, Hahnemann Medical College; Harry T. Zinsser, M.D., Robinette Foundation, University of Pennsylvania.

5:15 p.m.—Adjournment — Exhibits.

Hotel duPont

6:45 p.m.—Reception — Georgian Suite.

7:30 p.m.—Annual Dinner, duBarry Room. Members and Auxiliary are invited to subscribe. Tickets from Dr. Charles Levy, 621 Delaware Avenue, Wilmington — Dress: optional.

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TUESDAY, OCT. 18, 1955

Mrs. Gerald A. Beatty, President

9:30 a.m.—Registration.

10:00 a.m.—Business Meeting.

12:30 p.m.—Luncheon. Guest Speaker: Mrs. C. R. Pearson, Chairman, Nurse Recruitment, Woman's Auxiliary to A.M.A.
Installation of Officers: Mrs. Pearson.
Inaugural Address: Mrs. Richard W. Comegys, Clayton.

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6:45 p.m.—Reception and Dinner (Subscription)

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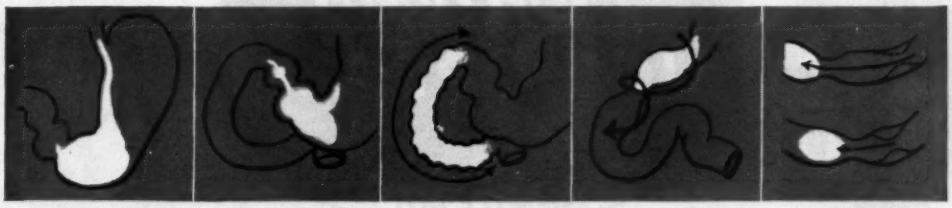

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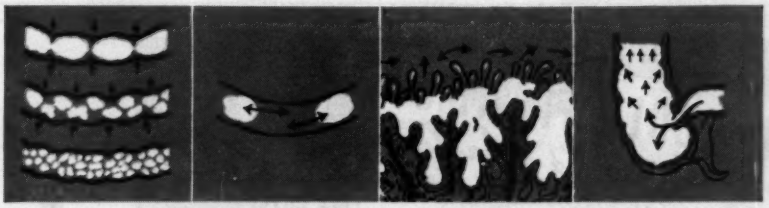

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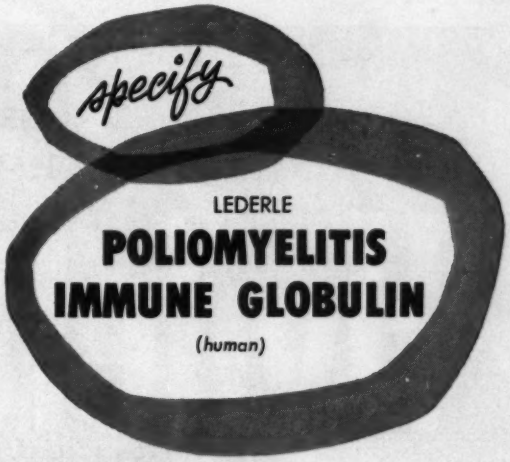

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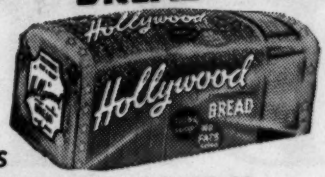

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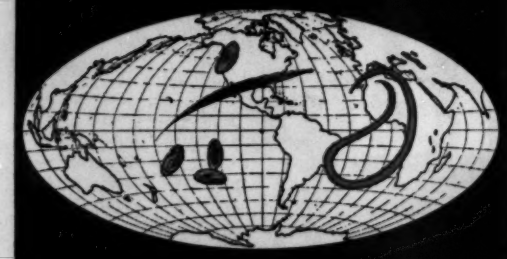

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Bumbalo, T. S., Gustina, F. J., and Oleksiak, R. E.: J. Pediat. 44:386, 1954.

White, R. H. R., and Standen, O. D.: Brit. M. J. 2:755, 1953.

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Brown, H. W.: J. Pediat. 45:419, 1954.

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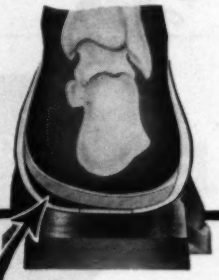

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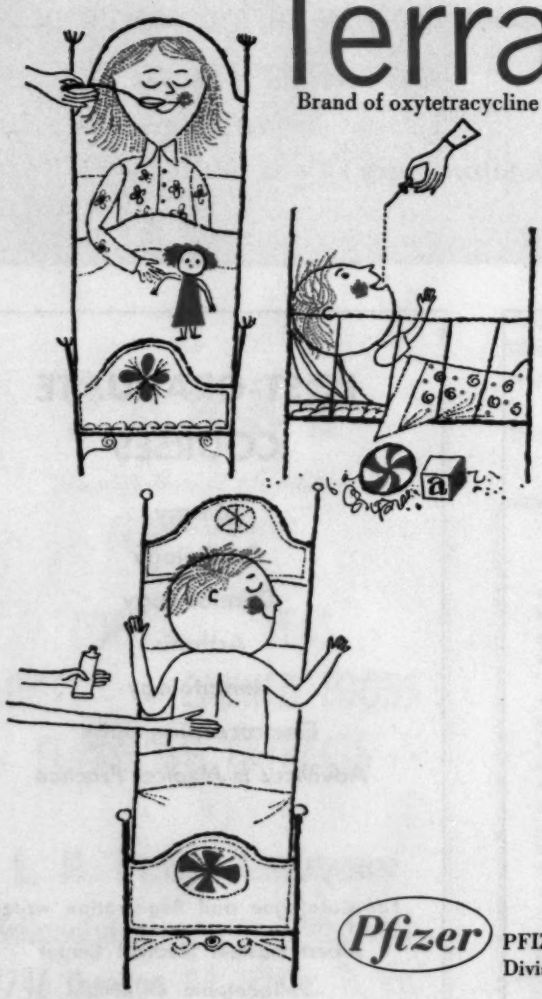

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*Farley, W. J.: Oxytetracycline in Pediatrics, Internat. Rec. Med. *168*:140 (March) 1955.

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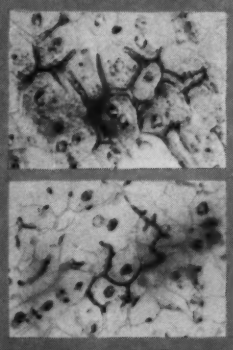

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(1) Clara, M.: Med. Monatsschr. 7:356, 1953. (2) Brauer, R. W., and Pessotti, R. L.: Science *115*:142, 1952. (3) Schwimmer, D.; Boyd, L. J., and Rubin, S. H.: Bull. New York M. Coll. *16*:102, 1953.

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(1) Jeans, P. C., in A. M. A. Handbook of Nutrition, ed. 2, Philadelphia, Blakiston, 1951, pp. 275-278.

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